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DIET AND CARE OF
CHILDREN

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Questions Mothers Ask the Doctor

BY

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TO
MY WIFE
AND CHILDREN

PREFACE

THIS book represents an experience of many years in hospital, dispensary and infant welfare work, and in private practice with children.

It is, therefore, a practical book with a practical origin. Its purpose is to aid and assure the conscientious mother and to provide for the comfort and well-being of both mother and child.

South Manchester, Conn.

January 8, 1924

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Diet and Care of Children

ANATOMY, PHYSIOLOGY AND DEVELOPMENT

AS THE new-born infant enters the world he embodies in his minute organism the sum total of humanity, and in many ways and characteristics he has, during his brief prenatal life, harkened back to the very beginnings of biologic existence.

In a remarkably short period of the average time allotted to the human drama he has enacted a synopsis of the plot which it is his destiny to continue. This rôle is henceforth translated into anatomical, physiological and developmental averages to which individuals conform more or less closely. Marked deviations from these averages are interpreted as abnormalities.

1. What is the normal weight development during the first year?

Boys average to weigh a trifle more at birth than girls, but in general the average weight of a baby at birth is from $7\frac{1}{2}$ to 8 pounds. During the first few days there is an initial loss of weight (due chiefly to in-

sufficient nourishment and loss through urine and feces), usually amounting to several ounces, but at the end of a month the birth weight should be regained and increased to a total of about $8\frac{1}{2}$ pounds. The subsequent gain up to 6 months should be at the rate of about $1\frac{1}{2}$ pounds per month. This may be expressed as follows:

Months....	1	2	3	4	5	6
Pounds....	$8\frac{1}{2}$	10	$11\frac{1}{2}$	13	$14\frac{1}{2}$	16

The average gain during the next 6 months is about 1 pound per month, expressed as follows:

Months....	7	8	9	10	11	12
Pounds....	17	18	19	20	21	22

Roughly speaking, the infant doubles his weight at 6 months and triples it at 1 year.

The above averages are a trifle arbitrary, but are approximately correct.

2. *What is the normal weight development during the second year?*

The average gain during the second year is $\frac{1}{2}$ pound per month. This may be expressed as follows:

Months....	13-14	15-16	17-18	19-20	21-22	23-24
Pounds....	23	24	25	26	27	28

3. *What is the average weight development from two to ten years?*

At 10 years a child should weigh from 63 to 66 pounds, or about 8 times that of a generous birth weight of 8 pounds, gaining an average of $4\frac{1}{2}$ pounds per year. From 2 to 10 years boys average from 1 to $1\frac{1}{2}$ pounds heavier than girls.

4. *What is the average weight development from ten to fifteen years?*

From 10 to 15 years a child should normally gain about 40 pounds, an average of 8 pounds per year. During this period girls average to slightly exceed boys in weight.

5. *What is the rate of gain in length during the first ten years?*

At birth the length averages $20\frac{1}{2}$ inches. The gain is greatest during the first year, amounting to about 8 inches. During the second year the gain is $3\frac{1}{2}$ inches and from then until 10 years the gain amounts to 20–22 inches, making an average total length of about $41\frac{1}{2}$ feet.

6. *How does the pulse rate vary from birth to ten years?*

At birth the rate per minute averages about 130, at 5 years 95–100, and at 10 years 80–90.

7. *How does the respiratory (breathing) rate vary from birth to ten years?*

At birth the rate per minute averages about 40, at 5 years 20–25, and at 10 years 18.

8. *How many teeth are there in the first set?*

There are 20 teeth in the first set, 10 upper and 10 lower ones.

9. *How many teeth are there in the second set?*

There are 32 teeth in the second set, 16 upper and 16 lower ones.

10. *When do the teeth of the first set make their appearance?*

There are twenty teeth in the first or temporary set.

The first teeth to appear, at about six months of age, are usually the two lower middle ones; these are followed by the two upper middle ones; and these are followed by the upper and lower ones immediately beside them, making eight middle or *incisor* teeth. Then come the first *premolar* teeth, one above and one below on each side, which will eventually (when all of the first teeth are erupted) be next to the extreme end or back teeth above and below; these are followed by the four *canine* or "eye" teeth, one above and one below on each side, which fill the spaces between the first premolars and the eight incisors; last of all come the extreme end or back teeth, which are also termed "premolars." Thus when all of the first teeth are erupted there are present: eight middle or incisor teeth, four canine or eye teeth and eight premolars.

The above order of appearance may be represented by the following formula, the upper and lower rows of numbers corresponding to the arrangement in the mouth of the upper and lower rows of teeth, each number representing the month of a child's age when its corresponding tooth most commonly makes its appearance:

<i>Premolars</i>	<i>Canines</i>	<i>Incisors</i>				<i>Canines</i>	<i>Premolars</i>
28 14	18	10	8	8	10	18	14 28
30 14	20	12	6	6	12	20	14 30

There are many normal exceptions to the above exact order.

11. *When do the teeth of the second set make their appearance?*

There are thirty-two teeth in the second or permanent set.

The twenty teeth nearest the mid-line of the mouth take that position by replacement of the first set, practically forcing the latter out of their sockets, and are designated as indicated by the formula below. The additional twelve teeth occupy new spaces furnished by growth of the jaws and are termed *molar* teeth.

The order of appearance of the second set may be represented by the following formula, the upper and lower rows of numbers corresponding to the arrangement in the mouth of the upper and lower rows of teeth, each number representing the year of an individual's age when its corresponding tooth most commonly makes its appearance:

<i>Molars</i>		<i>Bicuspid</i> s		<i>Canines</i>		<i>Incisors</i>				<i>Canines</i>		<i>Bicuspid</i> s		<i>Molars</i>	
18-25	12	6	10	9	11	8	7	7	8	11	9	10	6	12	18-25
18-25	12	6	10	9	11	8	7	7	8	11	9	10	6	12	18-25

The third, or last, molars, which are popularly called "wisdom teeth," do not make their appearance until some time between the 18th and the 25th year.

12. *Does teething actually cause illness?*

There are great variations in the ease with which teeth perforate the gums in different individuals. In some babies they come through without any difficulty and in others the gums become red, swollen, hot, tense and sore. It is not remarkable that in such cases the vitality should be lowered, making the infant a more liable subject for an intestinal upset, with fretfulness, lack of appetite, fever and diarrhea, than he would ordinarily be.

Of course teething is far too often blamed for symptoms which are really not due to it, and it seems per-

fectly safe to say that a vast majority of cases showing symptoms which are attributed to teething are so diagnosed from lack of careful examination or a true interpretation of the actual condition. Teething too often serves as an alibi for a proper diagnosis.

13. *What may cause delay in the appearance of the teeth?*

The condition known as rickets, a disease affecting bone nutrition and growth; cretinism, a condition due to defective development of the thyroid gland; and prolonged illness.

14. *What is the soft spot?*

At birth the cranium (dome of the skull) is made up of a number of bony and cartilaginous (gristly) plates, the edges of which are united by strong fibers. These plates are in more or less close contact with each other and there is a limited amount of independent motion permitted at their edges, their junctions being termed *sutures*. In some places at the junction of several of the bony plates we find a considerable amount of separation, causing the *soft spots* or *fontanels*.

The motion permitted by the sutures allows the cranium to mold itself to the shape of the birth canal, and the heads of most normal babies at birth are considerably elongated or drawn out, which condition gradually disappears within a few hours or days. This structure of the cranium permits of the tremendous growth of $4\frac{1}{2}$ to 5 inches in circumference which occurs during the first year as contrasted with the subsequent growth of only 3 inches during the next 12 years.

15. *When does the soft spot close?*

The large lozenge-shaped soft spot in the mid-line, just above the forehead, technically known as the *anterior fontanel*, averages to close at 18 to 20 months of age.

16. *Is the soft spot liable to be injured?*

Very few accidents occur to the *soft spot* or *anterior fontanel*, but it is well not to forget its presence in handling the baby and thus avoid possible injury.

17. *What may cause delay in closure of the soft spot?*

Rickets is the most common cause, the condition being one of the manifestations of the perverted bone growth. Delayed closure occurs in *cretinism*, a condition in which there is a deficient secretion of the thyroid gland; *hydrocephalus*, or water on the brain; and in *Mongolian idiocy*, a form of defective mentality accompanied by Mongolian features.

18. *What causes flat chest?*

Flat chest is caused by obstruction to the upper air-passages and is a symptom of general weakness.

19. *What is pigeon chest and what causes it?*

In this condition the breast-bone projects prominently, the adjacent front portion of the chest being unduly narrowed. It is seen where the upper air-passages are obstructed, as in adenoids, and in congenital heart disease, and is commonly a result of rickets.

20. *What is funnel chest and what causes it?*

In this condition the breast-bone is depressed, causing

a hollow in the front of the chest wall. It sometimes exists at birth and is commonly caused by rickets.

21. *What is a "blue baby"?*

When there is a malformation of the heart existing at birth the blood may not be forced through the lungs in a proper manner to obtain a sufficient amount of oxygen and therefore remains blue (exposure to oxygen making it red). Depending largely upon the degree and kind of malformation, the baby may present a constant or only an occasional blue appearance. Some of these cases live to become adults, but the greater number die before reaching maturity.

22. *When should a baby begin to hold his head up?*

At 3 to 4 months.

23. *When should a baby begin to take notice?*

Objects are followed by the eyes at about 3 or 4 months.

24. *When should a baby begin to sit up?*

He should begin to sit up, unsupported, at about 6 or 7 months.

25. *When should a baby begin to stand?*

He should begin to stand, with support, at about 9 or 10 months.

26. *When should a baby begin to walk?*

He should begin to walk at about 12 to 14 months; however, it is not very unusual for unsupported walking to be delayed to 18 or even 20 months.

27. *When should a baby begin to talk?*

Most babies begin to say words at 10 to 12 months, but do not begin to put them together into sentences until 20 to 24 months.

28. *How long is an infant especially liable to have colic?*

The first three months constitutes the colicky period. It takes about this length of time for the digestive machinery to get to running smoothly.

29. *What is the normal appearance of the baby's first stools?*

For nearly a week after birth the stools are dark, almost black, having a slightly greenish tinge, and are called *meconium*. They consist for the most part of material thrown off from the walls of the intestines. Gradually, toward the end of the first week, they begin to assume the yellowish appearance of the later normal stools.

30. *How long does it take for food to pass through a baby's intestines?*

It has been found by adding a colored (carmine) preparation to the food that it normally takes 18 to 22 hours.

31. *How many times should a baby's bowels move in twenty-four hours?*

Two or three times. If they move more often than four times conditions are decidedly abnormal and should be corrected. Oftentimes overfeeding will cause numerous stools.

32. *How often should a baby urinate?*

Babies vary in regard to frequency of urination, passing water from once every hour to once every three hours. As a rule, the more the fluid intake the more frequent the urination. Also, urination is usually more frequent during the active waking hours.

33. *Should an infant's urine be acid or alkaline?*

At birth the urine is in most cases of a distinctly acid reaction. Later on it is ordinarily faintly acid or of neutral reaction.

34. *What is physiological jaundice or icterus?*

In many (not all) babies within the first few days after birth the skin, mucous membranes and the whites of the eyes assume a greenish or yellowish hue of varying intensity, being very pronounced in some cases. The discoloration lasts for a week or ten days—very rarely two weeks. There are various theories advanced in explanation of this condition, the cause of which is not definitely proven. The probability is that there is a degree of bile production in early infancy to which the minute tubes and ducts do not at once adjust themselves in some cases, causing a damming back of bile into the blood. The condition is absolutely harmless and should cause no concern unless prolonged beyond two weeks, in which case it may be due to some more serious cause.

35. *What changes may occur in a baby's breasts soon after birth?*

They sometimes become temporarily swollen and somewhat dusky in appearance, due to an accumula-

tion of fluid resembling colostrum (see *colostrum*, question 173). This fluid was formerly termed "witeh's milk." The proper treatment of this condition is to leave the breasts absolutely alone. Otherwise infection is very liable to occur. The swelling will spontaneously subside in a short time if this benign treatment is observed. Considerable damage is liable to follow more strenuous methods.

36. *What is the digestive action of saliva?*

Diastase is present in the saliva at birth, and later on maltase and potassium sulfoeyanid appear. The diastase acts somewhat feebly upon starches, this action being continued for some time in the stomach. The mixture of the saliva with gastric juice enhances the action of the hydrochloric acid upon casein curds of milk.

37. *How early is saliva secreted?*

At birth.

38. *What is the function of the stomach?*

The first function is that of a reservoir. Preliminary digestion takes place there. Protein is coagulated by the rennet ferment in the presence of the hydrochloric acid secreted by the stomach. The pepsin in the gastric juice converts to some degree the coagulated protein into peptone in the presence of the stomach acids. Some digestion of fats and starches probably also takes place in the stomach.

39. *Where does digestion chiefly take place?*

Most of the digestive process takes place in the small intestine.

40. *What are the principal digestive fluids of the stomach?*

Hydrochloric acid, lactic acid, rennin, pepsin, lipase.

The hydrochloric acid and lactic acid permit the digestive fluid rennin to coagulate the casein in milk, causing curds. Pepsin partially converts these protein curds into peptones to facilitate assimilation into the body. Lipase is present to some extent in the stomach and acts upon fats.

41. *What are the principal digestive fluids acting in the intestine?*

Diastase, maltase, invertase and lactase, acting upon carbohydrates; tripsin, acting upon proteins; and lipase, acting upon fats. It is regarded that, in order to be effective, the latter two fluids require the presence of other chemical bodies with which they come in contact in the small intestine.

42. *What is the relative length of an infant's and an adult's intestines?*

The intestines of an infant are much longer in proportion to the body length than are those of an adult, affording more loops and turns than are present in the adult intestines.

43. *Why are young infants especially liable to be constipated?*

The intestines, especially at the lower portion or sigmoid flexure, are not only relatively longer in a young infant, but are more tortuous, and the muscles which act in forcing the contents along are weaker and in some cases very weak, causing delay in the propulsion of the contents.

44. *What is the pylorus?*

A muscular ring at the junction of the stomach and small intestine. After food has entered the stomach the pylorus relaxes at intervals, allowing small portions of the partially digested food to enter the small intestine, where digestion is completed.

45. *What is pyloric stenosis?*

A condition in which the contractions of the pylorus or muscular ring are so excessive as to prevent food from properly passing from the stomach into the small intestine. This causes retention and vomiting. The condition is dangerous, and in some cases, unless promptly treated, may rapidly lead to death by starvation, inasmuch as food is not fully digested and properly assimilated until it reaches the intestine. The excessive contractions are due to muscle spasm, and to this is often (some say always) added an overgrowth of the muscle itself.

46. *When do tears first appear?*

It is from two to four months before the tear-glands become fully developed and the secretion becomes completely established.

HYGIENE AND ENVIRONMENT

CAREFUL attention to details of bathing, clothing, ventilation, sleep, exercise and all environmental factors is bound to reap its ultimate reward in aiding to put the recipient in the most favorable relationship to the surroundings with which he will have to contend.

Undue coddling, however, is liable to stand in the way of normal development of his natural faculties of adaptation, and should be avoided.

47. *Should a mother take the neighbors' advice about bringing up her child?*

The mother who hazards the wellbeing and upbringing of her offspring upon neighborhood advice (particularly the unsolicited brand) is gambling with valuable stakes.

Almost any physician of a few years' experience could write voluminously in enumerating the sheer nonsense which he has heard recited to him as having been perpetrated in the guise of friendly advice. About the mildest thing that can be said about the unsolicited brand is that it is inconsistent and conflicting.

There are many sensible, experienced mothers who are perfectly capable of giving most valuable advice if the young mother is fortunate enough to know where to request it, but seldom is this kind of advice peddled about promiscuously and unrequested.

48. *How should a baby be lifted and carried?*

It is essential that the back and neck should be supported. The lower limbs should be raised with one hand and the upper back, neck and head should be supported on the spread palm of the other hand.

A young infant may be satisfactorily carried about on a small pillow.

When the baby is able to hold up his head unsupported he may be raised by placing the hands under the armpits and grasping the sides of the chest, taking care not to bring too much strain upon the shoulders alone.

Great care must be taken at all times to avoid undue bending of the neck or spine.

49. *What items should be considered in furnishing a nursery?*

Low table for eating and play.

Low table for bathtub (above can be used if necessary).

Folding canvas-topped table for dressing, changing, etc.

Table for toilet equipment.

Table for scales, basket, etc.

Chairs.

Chamber chair.

Clothes bureau.

Receptacle for soiled diapers.

Crib.

Baby pen.

Bathtub.

Scales.

Thermometer for ascertaining room temperature.
Heating facilities.
Ventilating facilities.
Lighting facilities.
Screens for protection from light and draughts.
Electric fan.
Shades.
Awnings.
Simple hangings.
Simple floor coverings.
Decorations.

50. *What is a proper equipment for a nursery toilet table?*

Alcohol.
Olive oil or sweet oil.
Albolene.
Vaseline (in tube).
Zinc oxide ointment.
Boric acid crystals.
Talcum powder.
Zinc oxide powder.
Zinc stearate powder.
Starch.
Castile soap.
Sterile cotton.
Salicylated cotton.
Sterile gauze.
Soft washcloths.
Soft towels.
Soft hairbrush.
Fine comb.
Safety pins, large and small (plenty of them).

Needle.

Thread.

Blunt-tipped scissors.

Rectal thermometer.

Bath thermometer.

Medicine-dropper.

A glass.

51. *What makes a satisfactory waste receptacle for the toilet table?*

An ordinary paper bag attached to one of the top edges of the table by means of strips of adhesive plaster. The bag can simply be burned with its contents and replaced by a fresh one.

52. *What is a suitable type of crib for a young infant?*

An ordinary clothes-basket or a wooden box, enameled white, makes a very satisfactory and economical crib. If a basket is used, a woolen blanket can be placed in the bottom and draped up over the sides for the sake of additional warmth. A small mattress of bed ticking or unbleached muslin stuffed with hair, excelsior, cotton, felt or sphagnum moss should be placed upon the bottom of the crib. This should be covered with some waterproof material such as rubber sheeting, oilcloth, oiled silk or oiled paper (rubber sheeting is best). Over this should be placed a soft quilted pad. Later on an enameled metal crib with springs will be more appropriate. The latter should have high sides which can be raised or lowered.

53. *Should a young infant use a pillow?*

A pillow should not be used. Without it he will not

only sleep better, but the spine will have a more favorable opportunity to develop normally.

54. *When does the cord-stump separate from the body?*

From five to ten days after birth. The cord becomes dried up and mummified, a constriction forms close to the body, and the cord finally separates spontaneously, leaving a raw surface which quickly heals over.

55. *What is a proper method of dressing the cord-stump?*

Everything that comes in contact with the stump should be sterile. It may be gently washed off with alcohol and the end lightly painted over with a solution of alcohol and tincture of iodine, equal parts. Boric-acid powder is then dusted over it and it is bound up with salicylated cotton, and the latter wound about with thread or held in place by means of an ordinary rubber band. A pad of sterile gauze should be folded over this dressing, and the abdominal binder is then bound snugly on outside. Great care should be taken at bath-time not to wet this dressing.

56. *What danger may occur from careless and uncleanly treatment of the cord-stump?*

Fatal infection may readily occur. It should not only be treated as an open wound, but its intimate connection with the interior of the abdomen makes it imperative that the most sedulous care be observed in this connection. Cord infection is usually fatal. Tetanus (lockjaw) may result from careless handling.

57. *What routine care should an infant's eyes receive?*

Immediately after birth a few drops of 2% silver

nitrate solution should be instilled between the lids of each eye by means of a medicine-dropper. This may save the baby from blindness and should be insisted upon. At bath-time daily a few drops of warm boric-acid solution (one teaspoonful of boric-acid crystals to a cupful of warm boiled water) should be instilled between the lids. The eyes should of course always be protected from strong light and from dust. The baby should be kept away from anyone who has sore eyes or, in fact, any pus discharge.

58. What is a proper bath-room temperature for infants and young children?

At least 85 degrees F. at first. It is permissible to lower the temperature one degree every two months, reaching a minimum of 79 degrees at one year.

59. How should the skin be cleansed immediately after birth?

The skin at first has a cheesy or creamy coating called *vernix caseosa*. This should at first be softened by anointing with vaseline or olive oil. If the vernix is very abundant it may take several hours to soften up sufficiently for complete removal, but ordinarily a few minutes suffice. After softening remove by gentle rubbing. The baby may then have a sponge bath.

60. When should tub bathing be started?

After the cord has come off and the stump is well healed. For the first two weeks it is better to give sponge (so-called) baths, using a soft washcloth instead of a sponge. After two weeks tub bathing may be started.

61. *What is a good substitute for a tub bath?*

A shower bath, especially in children over one year of age. The shower may be started with the water at a temperature of 90 degrees F., gradually lowered to 80 or even 75 degrees F. and followed by a good brisk rub-down. When the child has become accustomed to this method of bathing, and if he gets a good reaction after the cooling spray, he should be less liable to take "cold" when unavoidably exposed.

62. *How can the bath-water temperature be ascertained?*

By the use of an ordinary bath thermometer. The thermometer is encased in a wooden jacket and may be floated in the water. Procurable at any good drug-store, or hospital and nursery supply store. The temperature may be roughly judged by dipping the elbow into the water, but it is far better to use the thermometer.

63. *What is a proper water temperature for a cleansing bath for infants and young children?*

At first the temperature should be 95 to 100 degrees F. The temperature may be lowered one degree every month until at the end of five months it is 90 degrees, and may be continued indefinitely at this temperature for an ordinary cleansing bath.

After one year of age the bath may be started at 90 degrees F. and finished at 80 degrees F., followed by a brisk rubdown with a rough towel. This procedure will, in normal children, tend to increase the resistance to exposure to cold, promoting a prompt and vigorous circulatory reaction.

64. *Is hard or soft water preferable for bathing?*

Soft water. If a good soap does not make an easy lather the water is too hard and can be softened by the addition of a little borax powder: one or two teaspoonfuls to the gallon of water. The softer water will be less irritating to the skin.

65. *What kind of soap should be used for bathing?*

A pure Castile soap made from a good grade of olive oil. It is a good investment to get the best, purest and most reliable soap.

66. *How should washcloths be chosen and cared for?*

Good soft cloths can be made of wool, cotton or stockinet, and should be about 8 by 8 inches. There should be several of them and each one should be wrung and dried out after using. At least twice a week the cloths should be boiled.

67. *How should the skin of a young infant be dried after the bath?*

Ordinarily by patting with a towel of soft material rather than by rubbing, except when he has been subjected to chilling, when it is permissible to use the more violent rubbing. Patting is less liable to cause irritation of the skin.

After thoroughly drying the skin with the towel dust on some talcum powder, zinc stearate or cornstarch, except on the genitals.

Great care should be observed in drying the folds or creases of the skin and behind the ears, especially if soapy water is used; otherwise unpleasant skin eruptions may occur, such as eczema or intertrigo.

If there is a tendency to irritation, the skin can be wiped with a cloth saturated with zinc-oxide ointment or zinc-oxide powder in olive oil and then dusted lightly with stearate-of-zinc powder or cornstarch, except on the genitals. In such cases the particular parts involved should not be washed with soapy water. Water without soap, bran water or albolene can be substituted.

68. *What kind of powder should be used on the skin after drying?*

Ordinarily after drying the skin should be lightly dusted with talcum powder, zinc stearate, cornstarch or equal parts talcum and cornstarch.

69. *What care should the nose receive at bathing-time?*

Dried secretions may be softened with liquid albolene and gently removed by means of a wisp of sterile cotton twisted about the end of a toothpick or wooden applicator. This must not be inserted far into the nostril, however.

70. *What care should the ears receive at bathing-time?*

The creases of the external ear and behind the ear should receive careful but gentle attention with soap, water and washrag. If there is much wax present in the external portion of the meatus or canal it may be removed by means of a wisp of sterile cotton twisted about the end of a toothpick or wooden applicator. This should only be used at the extreme outer portion of the canal, however, and should not be pushed inward to any extent for fear of injuring the delicate drum and adjacent parts.

71. Should the mouth be washed out with boric acid?

No. This is a very common and illogical procedure. The normal mouth secretions are alkaline and are most effective in combating infectious material when of this reaction. The continued use of boric acid is more liable to do harm than good to the delicate mucous membrane of the mouth. Although daily mouth-washing is unnecessary in young infants, if a mouth-wash is used it should be an alkaline preparation, such as sodium bicarbonate one level teaspoonful to half a cupful of warm boiled water, applied gently by means of sterile cotton wrapped about the finger.

72. What attention should the foreskin receive?

It should be fully retracted at bath-time about 3 times weekly, the exposed glans quickly washed off, and a small amount of plain or borated vaseline gently applied. The whole operation should be quickly done; otherwise there is danger of not being able to properly pull it back to its normal position again, owing to swelling which is likely to occur. If the foreskin cannot be fully retracted a physician should be consulted with the view of removing adhesions, and in occasional cases performing circumcision.

73. What precautions are to be taken in washing near the genital organs?

Always wash away from these parts, especially in female infants, as there is danger of carrying serious infection from the intestinal discharges.

74. What precautions are to be taken in using powder near the genital organs?

Do not use dusting-powders on the genital organs of

female infants, as it is liable to cause irritation and consequent infection.

75. What substitute may be used for water in bathing?

Oceasionally it is undesirable to use water upon the skin—*e.g.*, with certain rashes. Liquid albolene is sometimes used as a preferable substitute.

76. What is a suitable time for a baby to exercise?

Immediately after bathing he should be allowed to kiek about without clothing and according to his own sweet will for 10 to 15 minutes. His muscles will have unhampered freedom of play, and great benefit will occur from his unrestricted movements.

77. Should an infant be bathed when he has a "cold"?

A very frequent question.

Although bathing is always a necessary function, it seems to me that it is of greatest importance during illness, as it helps to free the body of impurities and promotes reflex stimulation, which is beneficial. When baby has a "cold" special pains are of course necessary to guard against undue exposure; therefore it is desirable to bathe him in a warm room, and, unless the latter is very warm, before a fire of some kind. Immediately after the bath the skin should be dried with sufficient vigor to produce a prompt reaction (reddening).

78. Should a baby go beach-bathing?

It is absolutely absurd to take a mere infant and subject him to the mental and physical shock attendant upon beach bathing in fresh or salt water. He is more likely to be frightened out of his senses than benefited

thereby. If he shows an inclination at 18 months to 2 years to paddle about in shallow water, all very well and good, but it is doubtful whether he will enjoy a dip much under 3 or 4 years of age, and even then it will not do him any good if he be unduly alarmed by it.

Obviously, a child should get a good rubdown afterward and should never be allowed to get chilled.

It is almost unnecessary to emphasize that a child should be taught to swim as early as possible.

79. Preparation of a bran bath?

Take a piece of gauze or cheese-cloth 6 by 12 inches, fold into a square 6 by 6 inches and stitch up two sides, making a bag. Put in a handful of ordinary feed-store bran and stitch together the mouth of the bag. Shake and squeeze the bag in the bath-water until the latter becomes milky white.

80. When are bran baths used?

When soap-and-water baths are undesirable. Bran baths are used in eczema, prickly heat, chafing and other skin affections.

81. Preparation of a soda bath?

Two tablespoonfuls of baking soda to a gallon of warm water. Dissolve the soda in a pint of warm water and then add to the bath.

82. When are soda baths used?

Soda baths sometimes give relief in prickly heat and other skin irritations. The soda bath can be combined with starch water.

83. Preparation of a starch bath?

One-half cupful of boiled laundry starch to a gallon of water. Mix it up in a pint of warm water before adding to the bath-water. Stir thoroughly.

84. When are starch baths used?

They are useful in hives and prickly heat.

85. Preparation of a salt bath?

One-half cupful of salt to each gallon of water. Dissolve in a smaller portion of warm water before adding to the bath-water. The proportions are the same for table salt, rock salt or prepared sea salt.

86. When are salt baths used?

They are sometimes used (when there are no skin eruptions) as a tonic for malnourished children, as in rickets. The salt bath should follow the ordinary cleansing bath and be continued for three to five minutes, being accompanied by constant rubbing and followed by brisk friction with a rough towel. The water should be tepid or cool. If there are skin eruptions of any considerable extent the salt will cause unpleasant irritation.

87. Preparation of a mustard bath?

Four level tablespoonfuls of mustard to each gallon of water.

88. When are mustard baths used?

A mustard bath acts as a stimulant to the circulation and brings the blood to the body surface, tending to de-

crease brain congestion. The baths are used in convulsions, to bring out the rash in eruptive fevers (measles, etc.) and to promote general stimulation through the circulation. The child should not remain in the bath for more than five minutes.

89. *When and how should a child be trained to move the bowels?*

Training may be started at two to three months of age. Each morning at the time when his bowels usually move he should be set upon a small warmed chamber which is held in the attendant's lap, his back being toward the holder. Success may be promoted at first by the insertion of a soap or glycerine suppository or a lubricated small, smooth glass rod. Grunting on the part of the attendant will sometimes furnish inspiration. Failure should never be followed by punishment.

90. *What wardrobe should be prepared for a young baby?*

4 flannel binders—the binder to be sewed on each day after the bath.

6 knitted 7-inch bands with shoulder-straps, avoiding rough inner seams as far as possible.

4 long, high-necked and long-sleeved woolen, silk-and-wool or cotton-and-wool shirts. In very hot weather low-necked cotton shirts may be worn.

3 dozen diapers, 20 by 24 inches or 20 by 40 inches. Cotton, stockinet or linen.

6 petticoats of flannel, cotton or muslin (according to temperature).

4 flannel slips.

6 plain muslin, nainsook or lawn slips, extending to the feet and fastening behind with buttons.

2 knitted sacks.

6 long nightgowns of flannel or canton flannel (muslin, thin outing flannel or cambric in warm weather) with drawstring at bottom.

A warm cloak.

Crocheted or knitted socks of silk thread or soft yarn. To be tied at ankles with ribbon or cord.

2 pairs of mittens.

2 gray or white veils.

2 bonnets with interlining.

Rubber, oilecloth, oiled-silk or oiled-paper crib sheeting.

6 soft quilted pads for the crib.

6 crib sheets.

2 crib blankets.

3 knitted blankets of various weights.

4 blanket pins.

1 or 2 hot-water bottles.

91. *What are some desirable factors to be considered in clothing a young child?*

The clothing should be light in weight and at the same time sufficiently warm. It should be soft in texture; therefore no starch should be used in washing. Loose clothing is warmer than tight, all other things being equal, as the air contained between the clothing and the body is a poor heat conductor; moreover loose clothing permits greater freedom of muscle action. A certain degree of porosity allows of ventilation and evaporation from the body surface. Obviously cloth-

ing should be dry and clean. Body contacts should be free from rough seams and irritating surfaces.

92. *What should govern the amount of a child's clothing?*

The temperature to which the child is subjected. Consult the thermometer rather than the calendar.

93. *What are some of the results of excessive clothing?*

There is a distinct tendency for mothers to over-clothe their children rather than err in the opposite way. Children who are habitually over-clothed are apt to be pale and languid and are liable to contract "colds" and be subject to intestinal disturbances. The result of too much clothing is to cause overheating and excessive sweating and even actual elevation of the body temperature (fever). Such babies are subject to prickly heat, sleep poorly and cry much as a rule. A superabundance of clothing interferes with the bodily activities, retards muscular development and oftentimes interferes with proper breathing. If the clothing is too tight there is liable to be vomiting. There may be failure to gain or even actual loss of weight.

94. *How should the abdominal binder be made and worn?*

The abdominal binder serves a manifold purpose, acting primarily as a dressing to protect the cord-stump, and furnishing warmth to the delicate abdominal organs. The support furnished to the abdominal wall may perhaps be of some value at first, but would later on be a disadvantage owing to restriction of free muscular action and development. The binder should be

made of all-wool flannel, an unhemmed strip, averaging 7 inches in width and 18 inches in length. It should be fitted snugly but not tightly over the abdominal wall in one layer, being fastened at the side with tapes or small safety pins. Do not allow it to come high enough to restrict chest movements, nor low enough to restrict leg movements. The binder can be replaced by a band after the cord stump has separated and the wound has completely healed.

95. *How should the abdominal band be made and worn?*

The circular band takes the place of the abdominal binder after the cord-stump has separated and the wound has healed. It is preferably knitted and made of wool, silk and wool or cotton and wool. It should average 7 inches in width and the shoulder-straps should be knitted into the band without seams. It should extend from hips to ribs, but should not impede muscular action of chest or legs. The abdominal band is usually made with front and rear tabs for the purpose of pinning on the diapers. It is worn until the runabout age and furnishes valuable warmth to the abdomen.

96. *How are shirts made and worn?*

The shirt is usually knitted of wool, cotton, silk, cotton and wool or silk and wool. Cotton or cotton and wool make very suitable materials. There should be various weights for varying temperatures, not very heavy at any time, and quite thin in warm weather. The neck should be high and the sleeves long enough to extend to the wrists. The shirt should open all the way down the front, and is usually fastened at the neck with a gathering-string and down the front by means

of small flat buttons. There should be no rough seams, and the shirt should be loose enough not to compress or restrict the chest.

97. How are petticoats made and worn?

They should be made of all-wool flannel or of flannel and cotton, or the skirts can be made thus and fitted to a loose waist of cotton. The suspension should be from the shoulders by means of the waist without sleeves, which should open either in the back or on the shoulders. The skirt should not extend more than 8 to 10 inches below the feet, as it is undesirable to impede leg motion.

98. How are dressing-slips made and worn?

They are worn over all indoor garments—*i.e.*, band, shirt, diaper, petticoat. They should be made of some soft wash material, as cambrie, nainsook, batiste or lawn, and should be laundered without starch. They should be loose, especially so in the armholes, should be preferably without a waist line, and should be buttoned at the back. The sleeves should extend to the wrists, where they can be fastened with small safety pins or turned up. The length should barely exceed that of the petticoat. There should be no hard or rough ornamentation at the neck or wrists to cause irritation of the delicate skin.

99. How are nightgowns made and worn?

The night-slip should be longer than the dressing-slip and should be loose enough to allow free leg motion. There should be various weights for varying tem-

peratures, and in cold weather the bottom seam should be furnished with a drawstring to permit the bottom to be closed up like a bag, protecting feet and legs. The material should be light, soft and washable. In cold weather it may be flannel, cotton and flannel or cotton stockinet; in summertime muslin, outing flannel or cambric.

100. *How are wrappers made and worn?*

A wrapper should open down the front and may be worn in place of a day or night slip. It may be made of flannel, cotton and flannel or cotton. It is designed for the sake of comfort and convenience rather than for appearance and is analogous to the dressing-gown of an older person.

101. *How are diapers made and worn?*

Diapers should be made of some soft, light, absorbent material which is not too heating, such as cotton, stockinet or linen. The absorbent function is provided by material of loose texture. Diapers are usually applied so that the discharges are taken up on an inside absorbent pad, the diaper proper serving chiefly to hold the pad in place. The diaper also performs a function in furnishing warmth and protection to hips, genitalia and thighs.

The inner pad may simply consist of a small loose-textured diaper folded twice into a small square. It may be a special quilted pad or it may consist of gauze or cheese-cloth, or the latter wrapped about a mass of cleaned and dried sphagnum (florist's) moss or some absorbent paper.

If no pad is used a diaper 20 by 40 inches should be folded into a square, then diagonally into a triangle, forming four layers. The long side or hypotenuse of the triangle is wrapped about the waist and the two corners are pinned together and to the band in front. The apex is brought up between the thighs and pinned in front to the band; the open space on each thigh is closed by means of a safety pin, and the diaper at the same time pinned to the stocking. The back is also pinned to the band.

If an inner pad is used an approximately square diaper (about 20 by 24 inches) will be more appropriate, furnishing only two thicknesses when folded diagonally into a triangle. It is applied in the same manner as the foregoing.

The oblong diaper is sometimes applied by folding one end over sufficiently to cover the seat. The folded edge is wrapped about the waist, the middle is pinned to the band behind, and the two corners are pinned together and to the band in front. The lower portion is brought up between the thighs and pinned in four places in front.

A waterproof cover should not be used, except on very special occasions, as it will promote sweating and skin irritation and will not permit of sufficient ventilation and evaporation.

Stockings may be attached to the diaper by means of safety pins or by special garters which pin to the diaper.

102. *How should diapers be cared for?*

They should be removed as soon as soiled or wet, except at night, when they may be changed at feeding-

time. After removal place them in a closed receptacle until ready for washing, when they should be washed thoroughly with a good soap, not too alkaline, avoiding soda. After washing they should be boiled and then rinsed several times and aired for about 24 hours before use.

103. *How should soiled diapers be kept until washed?*

Preferably in a closed receptacle in a room or closet adjoining the nursery. If a physician is in attendance a specimen of stool should be preserved undisturbed on a recent diaper for his inspection.

A galvanized or enameled pail with a cover makes a satisfactory receptacle.

104. *When should a baby first wear short clothes?*

At about six months of age.

105. *What should a baby wear indoors when first put into short clothes?*

Band.

Shirt.

Diaper.

Stockings of light wool or cotton and wool.

Soft, light moccasins of kid, felt or chamois leather.

Soft flannel petticoat.

Short white dress.

Knitted sack (at times for warmth).

106. *Should a young infant wear stockings?*

Except in the warm summertime they should be worn as a protection. They should be of light wool or cotton

and wool. If made of the latter mixture they will be less liable to cause trouble by shrinking. If there is an annoying tendency to shrink they can be put on a special stocking-stretcher after washing. They must be large enough, and should not be allowed to cause any constriction of the feet or legs. The stockings may at first be pinned to the diaper, and later attached to the waist by means of garters.

107. When should a baby begin to wear shoes, and what kind should he wear?

Until the baby begins to creep about he does not need real shoes. When he is put into short dresses, at about 6 months, he may wear soft, light moccasins of kid, felt or chamois leather. When more active, at about 8 or 9 months, he may begin to wear high shoes of soft kid with rough soles of thin leather or kid. There should be no heels, and the soles should be neither stiff nor slippery. The shoes should be somewhat longer than the foot, with toes rather wide and loose, and heels and instep fitting snugly to prevent rubbing or turning of the foot. Laces (not tight) will make the fit more perfect. If the shoes are rather high they will be less likely to come off and will afford more warmth.

Ankle-braces are undesirable, except when there is marked weakness and bending, as muscular development should be stimulated by the baby's normal efforts to stand and walk.

In the summertime, if the baby does not actually go barefooted, an excellent substitute is afforded by broad-toed sandals.

Shoes are to be worn when needed, and the baby should sleep with his shoes off, like other human beings.

108. *What should a baby wear at the creeping age?*

When creeping, rompers may be substituted for the dress. At this period he may begin to wear high shoes of soft kid with rough soles of thin leather or kid.

109. *When should a baby first begin to wear drawers?*

As soon as he has been trained to get along without diapers in the daytime. He will need diapers at night for some time afterward.

110. *What should a child wear indoors at the beginning of the runabout age?*

Band.

Shirt.

Diaper (if not trained).

Waist.

Garters.

Drawers or bloomers.

Dress or rompers.

Knitted sack (at times for warmth).

Stockings.

Shoes.

111. *When should the clothing be suspended from the shoulders?*

As soon as the child is old enough to run about, the fundamental support for the clothing should be the shoulders, and it should not be supported by squeezing about the waist.

112. *What precautions should be taken in suspending clothing from the shoulders?*

Shoulder-straps should be wide enough to evenly distribute the strain along the shoulder and not so narrow as to concentrate it in one place. Narrow straps are liable to slip to the point of the shoulder, causing it to sag downward and forward.

113. *What is suitable night clothing for older children?*

An inner shirt of knitted wool or cotton and wool. Outside of this, nightdrawers with feet (Dr. Denton type), made of flannel, cotton and flannel, stockinet, muslin or outing flannel, depending upon the weather.

114. *Why is sleep necessary?*

During the expenditure of nervous energy there is an actual using up or exhaustion of nerve tissues. This waste has to be replenished during sleep.

115. *How much time should a child spend sleeping?*

The average time spent sleeping during the 24 hours should be as follows: From birth to 6 months, 20 hours; from 6 months to 1 year, 18 hours; from 1 to 2 years, 16 hours; from 2 to 6 years, 10 to 14 hours.

There are likely to be, however, some normal and many abnormal exceptions to the above rule.

116. *How long should daytime sleeping be enforced?*

Midday naps should be continued up to 5 years at least, and in nervous, high-strung, active children even longer. Even though a child does not sleep at midday, a rest of an hour or so in bed will have great value in maintaining nervous equilibrium.

117. *What is the proper position during sleep?*

An infant should sleep without a pillow, but with the mattress placed upon such a plane that the head is elevated slightly above the level of the feet. In this position there will be less likelihood of vomiting after nursing. Immediately after nursing the best reclining position is on the right side, as during the passage of food from the stomach into the intestine the course taken is toward the right. However, a baby should not remain in any one position for any great length of time, and the position of the body should be shifted occasionally.

118. *Should a baby be coddled, rocked or walked with at bedtime?*

Only in case of illness or emergencies are such attentions excusable. Not only the baby, but also the parents and the whole household soon become absolute slaves to such indulgences. The best way to control such a habit is to never allow it to start in the first place. If it has already started it should be resolutely curbed. It usually takes about three nights of persistent refusal to accomplish the desired result.

119. *To what extent should a sleeping baby be guarded from noise?*

Inasmuch as during the first six months a baby should average to sleep about 20 hours out of 24, it is a mistake to enforce excessive quiet during sleeping-hours. Usual household noises should be permitted and only loud, unusual noises guarded against.

120. *Should a young child sleep with an adult?*

He should by all means sleep alone if possible, and should preferably occupy his sleeping-room alone, but in living conditions as they commonly exist this is not always possible. However, it can usually be arranged to have him occupy his bed alone.

121. *What is overlying?*

A fatal accident that is very liable to occur if the baby is allowed to sleep in bed with its mother. The mother rolls over during sleep and smothers the baby. This accident has occurred many times, and when the nursing mother is in bed the nursing should be very carefully supervised, and the baby separated from the mother immediately after nursing.

122. *How should the nursery walls be constructed and covered?*

They should be preferably of plaster and simply painted of some light, pleasant shade—*e.g.*, cream or colonial yellow. Such walls can and should be often washed. If wallpaper is used it should be of a type that can be washed. Avoid arsenical coloring in wallpaper or any nursery furnishings.

The walls can be pleasingly decorated by pinning or pasting up appropriate colored pictures cut from magazines and other sources (children, animals, birds, etc.).

123. *What precautions should be taken in regard to the nursery hangings?*

They should be few, easily removable and often washed.

124. *What precautions should be taken in regard to the nursery floor?*

It should not be a dust- and dirt-catcher and should be easily cleaned. It should be preferably of hard wood, with the boards closely matched, and varnished. It should not be slippery. Linoleum makes a satisfactory surface. While it is desirable to have some coverings, they should be capable of being readily taken up and often washed.

125. *How should the nursery be lighted?*

There should preferably be windows on at least two sides of the room, in which case easterly and southerly exposures are desirable as furnishing a maximum of light during the earlier and greater part of the day. If there are windows on only one side of the room they should be southerly. The windows should be furnished with dark shades, awnings for summer use, and, if possible, old-fashioned blinds which will furnish darkness when required as well as ventilation.

Electricity is the artificial light of choice, as it exhausts no air from the room. Gas and oil lighting should be carefully supervised to avoid possible dangers. Avoid dazzling lights.

A candle protected by a chimney affords a satisfactory night light.

126. *How should the nursery be heated?*

The most hygienic heating system is afforded by the hot-air furnace with outside airbox. This permits of a constant ingress of fresh air from the outside. Such a furnace should be equipped with a water-pot, which

should be carefully kept filled to prevent excessive drying of the air.

Hot water and steam furnish efficient heating, but afford no outside ventilation. When they are used radiator pans should be furnished to allow sufficient humidity of the air in the room.

Coal, gas and kerosene stoves exhaust so much of the air as to render them less desirable.

An open fireplace is a valuable accessory in a nursery, not only furnishing means of quick heating, but also providing valuable ventilation.

127. What degree of humidity should be maintained in the nursery?

From 50 to 60 per cent. If the air is too dry there is great danger of catarrhal and other affections of the respiratory tract.

128. What is the most favorable average temperature for the nursery when the child is not bundled up for sleeping?

Sixty-eight to 70 degrees F. It is easier to maintain this temperature in wintertime by artificial means than oftentimes in summer. The temperature can be lowered if necessary by the judicious use of electric fans, but out of doors during the daytime should usually be the chosen place for the child.

129. What should be the minimum temperature when airing and sleeping?

For normal vigorous infants: For the first month,

60 degrees F.; from 1 to 5 months, 40 to 50 degrees F.; after 5 months, 25 to 30 degrees F.

In the case of very delicate infants the temperature should not be under 60 to 70 degrees F.

Extremes above 70 degrees F. and below 25 degrees F. are to be combated, in the summertime, by keeping indoors during the hot sunny midday, and outdoors, on proper days, in the shade in the morning and late afternoon; and in the winter by sunny exposures when possible and by the use of special heavy clothing, hot-water bags, hot-water bottles, hot bricks or electric pads if necessary.

130. *When should a baby be first allowed out of doors?*

During the first month of life a winter baby is better off indoors. After the first month the baby may be allowed outside during the middle of the day on good days if the temperature is not below 50 degrees F., the minimum temperature being lowered as the baby becomes older. All unfavorable exposures should be carefully avoided.

131. *What unfavorable outdoor exposures should be avoided?*

Wind, dust, rain, snow, fog, extreme cold, hot sun and insects are the common exposures to be avoided. With the exception of fog, the other factors can oftentimes be successfully combated in outdoor airing by proper placing and seclusion.

132. *How can a porch, room or baby-carriage be effectually screened from dust and soot?*

Screen with ordinary cheese-cloth. This will not only

act as a satisfactory strainer for most of the dust particles, but will at the same time protect to a certain extent from draughts and afford ample ventilation. It will also serve as a protection from insects.

133. *What special means can be used for airing a baby out of doors?*

A screened porch on the shady side of the house in summer or a porch on the sunny side in winter. A special screened bed which can be extended out of a window can be purchased, or a special roofed and screened-in platform can be constructed in the yard.

134. *How should the nursery be ventilated?*

There are various means of attaining this object, the simplest being to open the windows several times daily while the baby is out of the room, if the temperature is too cold or there is too strong a draught to have him remain in the room. However, it is desirable to have some steady means of ventilation such as may be obtained by the use of window-boards, muslin screens in the windows, ventilators or the presence of a fireplace in the room. A hot-air heating-plant with outside air-box affords a supply of fresh air which in wintertime can be properly warmed. The ventilating system should be so arranged as to provide immunity from draughts.

135. *What is a window-board?*

A board 6 to 8 inches in width and of a length corresponding to the width of the window, fitting into the casing under the lower sash of the window, which is

raised sufficiently to accommodate it. This permits a free supply of air to enter between the raised lower window and the upper one without causing an undue amount of draught.

136. *Is cold air necessarily fresh?*

Many people imagine that if air is cold it is necessarily fresh, but this is of course a very dangerous assumption. Air may be very warm and, if well ventilated, perfectly fresh. An undue exposure to cold, foul, close air is a doubly unsafe one.

137. *How early and how much should a baby be taken auto-riding?*

In automobiling, the same temperature precautions should be observed as for ordinary airing with young babies, but these precautions are much harder to enforce, especially on long rides in an open machine. Crowding, confusion and undue exposure must be sedulously guarded against. Long "hikes" with young babies are impractical. Under proper conditions, a nursing baby should benefit by short automobile rides, not only as a result of good airing, but indirectly through benefit to the mother, whether she goes along and enjoys the ride or whether she remains at home and enjoys the rest and temporary freedom from responsibility.

Under one year the baby will doubtless enjoy the scenery about as much in the seclusion of his veranda or under a good shady tree.

138. *Should a baby use a walking-machine?*

Development ought to be encouraged but not forced.

The baby should be allowed every reasonable opportunity to exercise his own inclinations as to sitting up, creeping, standing and walking, and thus receive a proper stimulus to normal development. When forced, as by a walking-machine, injury is liable to occur to the delicate body structures.

139. *Should a baby use a pacifier?*

No. Its use dodges the issue and allows a bad crying-habit, which may have originated from some such basis as underfeeding or overfeeding, to degenerate from bad to worse. Using a pacifier not only allows the baby to suck in an inordinate amount of air, but in time deforms the mouth, causes irritation and infection of the mouth, leads to adenoids, and affords an excellent means of introducing dangerous infections into the body.

DIET AND FEEDING

ANY intelligent farmer is cognizant of the tremendous influence that proper feeding exerts upon the development of young stock, whether they be chicks or calves. The same fact applies to young human beings. If the proper feeding of young pigs is deserving of great expenditure of thought, time and money, is it logical that the feeding of young humans should be allowed to be of the hit-and-miss type that it so often is, especially after the runabout age has been reached?

Maternal nursing is a normal physiological process which should furnish, if possible, the primary feeding-scheme of first choice during the first year. Artificial feeding, on the other hand, is abnormal and should be of second choice. Its application is often a very complicated matter, and if any difficulty is experienced with it, expert advice should be sought. In view of these facts the attempt has been made in these pages to offer a more intimate treatment of the normal feeding of choice than of the abnormal feeding of necessity.

An important criterion of success or failure in feeding is furnished by the progressive weight development, which should be recorded at least once a week.

140. *What is the natural food for a human being during the first year?*

Human breast milk is the natural and ideal food.

When properly furnished and administered, babies average to thrive better and show a greater immunity to disease and a smaller mortality percentage than do babies fed upon any other kind of food.

141. *Principal ingredients in milk?*

Butter fat (cream); protein (casein, paracasein, lactalbumin, lactoglobulin); sugar (lactose); mineral salts; water.

142. *Approximate percentage of ingredients in breast milk?*

	<i>Per cent.</i>
Fat	4.
Protein	1.50
Sugar	7.
Salts	0.26
Water	87.30
<hr/>	
Total	100.

143. *Approximate percentage of ingredients in cow's milk?*

	<i>Per cent.</i>
Fat	4.
Protein	3.50
Sugar	4.50
Salts	0.75
Water	87.25
<hr/>	
Total	100.

144. *What are the principal mineral salts present in human milk?*

Sodium, potassium, calcium, magnesium, chlorin, phosphorus and iron.

145. *What are the principal mineral salts present in cow's milk?*

Sodium, potassium, calcium, magnesium, chlorine, phosphorus, iron and sulphur.

The amount of mineral matter in cow's milk is about four times the amount present in human milk, but iron is present in smaller proportion than in human milk.

146. *What is cream?*

Cream represents the butter fats present in milk which, because of their relatively low specific gravity, have risen to the top after standing. The very top of the cream is nearly pure butter fat. These fats are chiefly olein, palmitin, stearin and volatile fatty acids. The volatile fatty acids are much more abundant in cow's milk and are far less easily tolerated by the infant than are the oleates which predominate in human milk.

The fat in human milk is more finely divided or emulsified than is the fat of cow's milk.

147. *What is protein?*

An essential food containing carbon, hydrogen, oxygen and nitrogen and other elements. It is well exemplified in egg albumin, lean meat and the cheesy curds of milk.

148. *How do breast-milk curds compare with those of cow's milk?*

The breast-milk curds are finer and more flocculent in

structure, while those of cow's milk are relatively coarse and tough.

149. *What is a carbohydrate?*

A combination of carbon, hydrogen and oxygen in certain proportions. Starches and sugars are carbohydrates differing somewhat in their combination of the above-named elements.

150. *What milk ingredients most often cause indigestion?*

Formerly protein was regarded as the disturbing ingredient, and "percentage feeding" came strongly into vogue, partly as a result of this belief. Nowadays, however, we have come to realize that true protein indigestion, manifested by so-called bean curds (hard, brittle curds, bean-shaped and bean-sized), is extremely rare. Fat is the usual offender. Natural sugar seldom causes trouble, but added carbohydrates often do. Mineral salts are probably a negligible factor.

151. *Should a young child drink unboiled water?*

As a general rule, during the milk-feeding period up to one year of age, the water should be boiled, although in most large communities, where the water supply is carefully supervised, the tap water is practically free from disease-producing germs and should be safe for older children. It is always a safe precaution to boil water of uncertain origin.

152. *What quantities of feeding should a baby receive during the first year?*

The amounts of food given should approximately cor-

respond to the stomach capacity at any given age, and the following amounts will usually be satisfactory in normal cases:

1 week	1½ oz.	4 months	5 oz.
2 weeks	2 “	5 “	6 “
3 “	2½ “	6 “	6½ “
4 “	3 “	7 “	7 “
2 months	4 “	8 “	7½ “
3 “	4½ “	9 “	8 “

From 9 to 12 months 8-ounce bottle feedings are sufficient.

153. *What length of time should elapse between an infant's feedings?*

The normal digestion time in an infant's stomach is nearly three hours, and as it is illogical to put food into a stomach in which digestion is uncompleted, shorter intervals than three hours are unsuitable for normal infants. There are normal variations in digestion-time, and some babies require longer intervals—practically never shorter ones. If the baby seems hungry before three hours have elapsed, it is better to increase the strength or amount of feeding rather than shorten the intervals.

154. *Why are short feeding-intervals undesirable?*

When too short feeding-intervals are used, food is put into a stomach which already contains food which has not passed out into the intestine. If this process is continued there eventuates an over-accumulation of undigested food, with consequent fermentation, manifested by indigestion, vomiting, colic, green stools and allied unfavorable symptoms.

155. *How does the digestion-time of breast milk compare with that of cow's milk?*

It is shorter with breast milk than with cow's milk.

156. *When should a child begin to take solid food?*

It is permissible to start a baby on semisolids at 7 months—strained cereals and vegetable purees; zwieback, dried bread and milk crackers may be given if he has teeth; or zwieback soaked in milk or water if the teeth have not erupted. At 8 months, broths with barley or rice. At 9 months, coddled egg mixed with bread, toast or cracker crumbs two or three times weekly. These additions to the diet may be given at regular feeding-times, taking the place of a portion of the breast or artificial feeding, or, if the baby's appetite demands, as an addition.

Milk feeding as a primary diet should not be abolished until 12 months of age, when normal babies should be put upon a regular runabout diet, irrespective of the season of the year.

157. *What is the appearance of the normal stool of the breast-fed?*

After the cessation of the passage of meconium: A light yellowish mass, having much the appearance of scrambled egg. It should not soak into the diaper to any extent.

158. *What is the appearance of the normal stool of the bottle-fed?*

After the cessation of the passage of meconium: Usually light yellow, but sometimes dark yellow when

certain carbohydrates are included in the formula. Usually more formed and of firmer consistency (often pasty) than in the breast-fed.

159. *What foods may cause variation in the color of the stools of the bottle-fed?*

Dextrimaltose, malt soup extract and barley flour darken the stools.

160. *Normal stool reactions in breast and bottle babies?*

In breast babies acid, in bottle babies alkaline.

161. *What is the significance of curdy stools?*

These are present in overfeeding—i.e., when the baby is getting too much food or is being fed too often. Curds are common in fat indigestion. These curds are yellowish or grayish, hard and brittle, and have a rancid odor when broken up. In fat indigestion we also at times get small whitish curds mixed with green. Fat curds dissolve for the most part in ether. Very rarely we get hard bean-shaped and bean-sized curds, made up chiefly of casein, occurring in protein indigestion. Usually if the milk is boiled, or a cereal or an alkali (such as sodium citrate) is added to the formula, these bean curds will disappear.

162. *What is the significance of frothy, irritating stools?*

These are a common symptom in carbohydrate indigestion, occurring especially when there is an excess of sugar. These stools are liable to be acid, causing irritation and excoriation of the skin of the buttocks. The frothy appearance is due to the presence of gas.

163. *What is the significance of bean curds?*

See question (161) of curdy stools.

164. *What is the significance of green stools?*

Briefly, they are associated with the presence of an excess of some element in the food. Oxidation of one of the bile constituents is regarded as a factor in some green stools.

After a stool has oxidized in the air for some time it tends to assume a greenish hue.

165. *What is the significance of mucous stools?*

Mucus is regarded as an invariable symptom of digestive disturbance, usually an indigestion associated with the presence of bacterial infection of the intestinal tract. Mucus is a usual accompaniment of the serious diarrheas of infancy.

A physician should always be consulted when mucus occurs in the stools.

166. *What is the significance of bloody stools?*

These occur in the serious infectious diarrheas. In early infancy blood may occur in considerable quantities in the stools in association with bleeding from other parts of the body in a serious condition known as hemorrhagic disease of the new-born. Bloody stools sometimes occur in scurvy. Hemorrhages may occur during the course of typhoid. Occasionally we find bright red blood in the stools in case of local bleeding low down, as in fissures of the anus.

A physician should always be consulted when there is blood found in the stools.

167. *What is the significance of tarry stools?*

These are significant of the presence of old blood, usually from high up in the digestive tract. They should not be confounded with the dark stools resulting from the administration of bismuth and iron.

168. *What drugs make the stools dark?*

The commoner drugs are bismuth and iron.

169. *Can immunity be transmitted through mother's milk?*

A breast baby enjoys some immunity to the diseases to which the mother is immune. Breast babies show, on the whole, greater average immunity than bottle-fed babies. The immunity, however, is not lasting.

170. *Can disease be transmitted through mother's milk?*

Pus bacteria, organisms causing some of the acute infectious diseases, and tuberculosis have been found in human milk.

171. *Is menstruation a contraindication to nursing?*

Practically never. For a few days during the mother's menstruation the baby may be somewhat cross, irritable and out of sorts, and may even have a slight digestive disturbance, but if he shows signs of serious illness at menstruation time it is in all probability due to some other cause.

172. *Is pregnancy a contraindication to nursing?*

Women very frequently nurse babies through nearly the whole course of pregnancy. The best gauge of a

mother's ability to nurse during this condition is her own and the baby's weight curves. If she is not of a highly nervous type and has no complications she will probably succeed in nursing during the early months, when it is of greatest importance. In the majority of cases it is better to discontinue nursing during the latter half of pregnancy.

173. *Do the mother's breasts secrete milk immediately after the baby is born?*

No. For the first 48 hours there is secreted a clear yellowish fluid called *colostrum*. This fluid is laxative and contains more protein and mineral salts, and less fat and sugar, than real milk. The baby should be put to the breasts regularly during the colostrum period, as by so doing the breasts are properly stimulated to produce real milk, and furthermore its laxative action helps to clear out the baby's intestinal canal.

174. *When and how does the fat content of mother's milk change?*

After the milk comes into the breasts and the flow is well established there is very little average change over the whole period of lactation, the fat average being about as high in the earlier months as in the later. The principal change occurs daily, the evening milk being higher in fat content than that of the morning, and the later milk of an individual nursing being richer than the earlier milk.

175. *Is the milk of equal composition from both breasts?*

Sometimes the milk of one breast differs from that

of the other, and if only one breast is used at a nursing this may account for greater hunger after nursing from one side than from the other; it may also sometimes account for one twin thriving better than the other, if each one always gets milk from one and the same breast.

176. Should a baby be awakened for feeding?

Babies should always be fed according to schedule, and usually, if accustomed to be awakened at definite intervals for that purpose, will soon learn to awaken themselves at feeding-time. Unless for some reason the baby is badly in need of rest, he should be awakened for feeding.

177. How long should an infant remain at the breast during each nursing?

The average time under normal conditions is 20 minutes. If the baby vomits or the mother has an excessive flow of milk it may be necessary to shorten the nursing-time to 15 or 10 minutes or less, or rest at intervals during the 20-minute period. The baby should be able to secure enough milk in 20 minutes, and longer periods are undesirable.

178. Should a baby drink water between nursings?

The routine administration of water between nursings is apt to result in loss of appetite and is not necessary.

179. What care should be taken of the nursing mother's bowels?

They should be made to move at least once daily, al-

though great care must be exercised in the matter of using cathartics, as some of them are excreted in the milk and may make trouble. When medication is necessary, I have found that mineral oil is most satisfactory in the majority of cases, as it is not absorbed. Caseara is often used successfully, although one should not lose sight of the fact that it is excreted to some extent in mother's milk. The usual expedients of laxative foods—coarse breads, cereals and fruits such as prunes and dates—should first be tried.

180. *What should be done for a constipated nursing baby?*

The mother's bowels should be made to move daily, using mineral oil if necessary. If over 3 months of age give orange juice 1½ hours after one of the morning nursings. Begin with a teaspoonful and increase a teaspoonful every 2 days until good results are obtained, up to 8 teaspoonfuls daily under 5 months of age. When over 5 months the baby may receive the juice of half an orange daily. Sometimes a like amount of prune juice (made from stewed prunes) is more effective.

Oatmeal water (a heaping tablespoonful of oatmeal to a pint of water—boil for one hour, occasionally replenishing the evaporating water, and strain), 2 teaspoonfuls before each feeding, may be given.

Milk of magnesia for short periods of time may sometimes have to be resorted to. Give 10 drops, more or less, according to results obtained, before each nursing. Some obstinate cases have responded to mineral oil, a teaspoonful more or less according to results obtained, three times daily.

Sometimes nursing babies are constipated because they do not obtain enough food.

Avoid the suppository and enema habit if possible.

181. *Signs of successful nursing?*

The baby sleeps well, does not cry excessively before or after nursing, does not vomit much if any, has from one to three stools daily, passes little gas per mouth or rectum, and gains steadily and at a rate suitable to its age.

182. *Signs of unsuccessful nursing?*

The baby sleeps poorly, cries soon after nursing or before it is time for nursing, or may cry almost continually. He may vomit immediately or soon after nursing and may be constipated, sometimes not having even one stool daily; or the bowels may move more than three times daily, the stools often being greenish. There may be quantities of gas passed by mouth or rectum, with attendant colicky symptoms. The baby may fail to gain steadily at a rate suitable to its age, or may even lose weight. When a baby has colic the knees are usually drawn up close to the abdomen and the cry is vigorous and indicative of pain.

183. *How can a mother's milk secretion be increased?*

Most successfully by completely emptying the breasts at regular intervals—i.e., by the stimulation of sucking or pumping. If the mother's own infant is unequal to the task of completely emptying the breasts another baby can sometimes be employed (especially if the mother is in a hospital) to complete the nursing, or the use of the breast-pump can be enlisted.

Many so-called galactagogues (medicines) have been advocated to increase the milk supply, but their very multitude is a gauge of their inefficacy.

A good wholesome diet embracing a generous amount of liquids is essential.

A state of mental equilibrium and freedom from worry and anxiety are necessary.

Healthful exercise (when she is able to indulge in it) and proper attention to sleep, bathing, fresh air and the condition of the bowels are essential requisites to good nursing.

184. *Has beer or any other alcoholic beverage any value in stimulating milk production?*

There is no convincing evidence that alcohol has any lasting value. Any possible gain in secretion would be more than offset by the loss to the infant by absorption of alcohol from the milk.

185. *How can breast nursing be materially assisted when the mother is unable to produce quite enough milk?*

By means of complementary feeding: Weigh the baby before and after several nursings and thus ascertain the average amount of milk obtained. Give a sufficient amount of bottle feeding after every nursing or every alternate nursing to make up for the deficiency, corresponding to the baby's age and weight. By this means milk production continues to be stimulated by having the baby at the breast at the proper intervals, and the baby derives the advantage to be obtained from mother's milk as long as it possesses beneficial qualities.

Another method is by means of supplementary feeding. One or more entire feedings are substituted for nursings. It is a good idea to give one supplementary feeding after three months in order to give the mother more freedom and to accustom the baby to cow's milk. Later on this affords a suitable means for administering some form of cereal feeding with the milk.

186. *Some contraindications to nursing?*

* Any serious acute illness of mother; constitutional or malignant diseases of mother—*e.g.*, tumor, tuberculosis or syphilis; nephritis or inflammation of the kidneys; epilepsy; chorea; insanity; continued loss of weight and exhaustion of mother; social and economic obstacles, as when the mother has to work in a factory or away from home.

Failure on the part of the baby to thrive after all fair means have been tried is an important contraindication. In spite of the strong statements made by some enthusiasts, we not infrequently encounter mothers who simply cannot successfully functionate, and it is far better to meet the situation face to face, if we can get good reliable cow's milk, than to dally along making the mother, the baby and everyone else miserable; for, all other things being equal:

Good nursing is better than good feeding.

Bad nursing is better than bad feeding.

Good feeding is better than bad nursing.

Oftentimes a breast baby who has lost, just held his own, or only barely gained for weeks, will begin to make good, substantial gains immediately when put upon a good formula.

187. *What drugs can a baby take in from a mother's milk?*

Alkaloids (opium, strychnia, etc.), mercury, arsenic, iodides, bromides, antipyrin, quinine, salicylic acid, alcohol, formaldehyde, turpentine, phenol, iodoform, castor-oil, rhubarb, purgative salts.

The above are some of the commoner drugs.

188. *Why may a baby refuse to nurse?*

Aside from the loss of appetite that commonly goes with most acute febrile illnesses there may be other causes. The baby may have a sore mouth (stomatitis) with redness and inflammation or ulcerations of the mucous membrane, making it actually painful for him to nurse. Sometimes for a day or so during the eruption of teeth the baby may be reluctant to feed. Undeveloped or inverted nipples may make nursing very difficult or impossible, causing the baby to give up in despair. If the breasts are furnishing insufficient milk there is a very obvious cause which the baby readily learns to respond to. If a baby gets some milk or water from a bottle with an easy nipple, causing a very free flow, he will oftentimes rebel when put to a breast which does not secrete very freely. Nasal obstruction, as with a head "cold" or adenoids, may render it very difficult for the baby to breathe while nursing. Cleft palate and marked tongue-tie will interfere with proper nursing. Overexcitement will sometimes be responsible for refusal to nurse.

189. *How can caked breasts be avoided when the baby is weaned?*

Pump about 2 to 3 teaspoonfuls of milk from each

breast and bandage both breasts snugly. Take a heaping tablespoonful of Epsom salts in half a glassful of warm water and do not drink much liquid for 24 to 48 hours.

190. *Suitable diet for nursing mothers?*

Four to six glassfuls of water daily (two upon arising in the morning).

One quart of milk daily.

Meat.

Poultry.

Fish.

Oysters.

Scallops.

Eggs.

Cheese (not too much).

Breadstuffs (not fresh).

Vegetables.

Cereals: Cornmeal, oatmeal, farina, cream of wheat, cream of rye, Pettijohn, groats, hominy, macaroni.

Simple fruits, especially stewed prunes, dates.

191. *Unsuitable diet for nursing mothers?*

Heavy puddings.

Underdone pastry.

Fried foods soaked in fat.

Doughnuts.

Fritters.

Croquettes.

Pickles.

Mince-meat.

Baked beans.

Pork (except bacon).

Sausage.

Cabbage.

Cauliflower.

Turnips.

Highly seasoned foods.

More than one cupful of tea or coffee daily.

Alcohol in any form.

Much candy.

192. *Care of the breasts at nursing-time?*

Before nursing the nipples should be gently washed with boiled water, and after nursing with boric-acid solution (a teaspoonful to half a glassful of warm water). If the breasts "leak" they should be kept dry by covering the nipples with pads of sterile gauze. If the milk is allowed to keep the nipples moist they are more likely to become cracked.

193. *Treatment of inverted nipples?*

The treatment should be commenced during the pre-natal period and should consist in massage with the object of drawing them out. After the babe has been put to the breast, if the nipples are too small it will be necessary to use a breast-pump, although massage should be continued as long as there is any hope to be derived from it.

194. *Treatment of cracked nipples?*

If the breasts tend to "leak" they should be padded with gauze to absorb the surplus milk, which will be likely to decompose and aggravate the condition. Wash

off, after nursing, with saturated boric-acid solution, or alcohol and water equal parts, dry and keep dry. Two or three times daily paint the nipples with silver nitrate solution 8% or bismuth powder and castor oil mixed into a paste. Applications of compound tincture of benzoin are of value. If necessary, use a nipple-shield for a few nursings or reduce the number of nursings from the fissured breast. Do not entirely cease nursing from the breast, however, if it is possible to continue.

195. *Treatment of sore nipples?*

After nursing wash gently with equal parts alcohol and water and apply white vaseline or lanolin and cover with pads of sterile gauze.

196. *Should a baby be nursed during the course of breast abscess?*

The baby should not be nursed at the abscessed breast, but should be nursed at the normal one. The diseased breast should be pumped at nursing-time, the milk being discarded. After the abscess has healed, there will be present in most cases a considerable portion of normal functioning gland from which the baby can derive nourishment.

197. *What precautions should be taken in choosing a wet nurse?*

The wet nurse should obviously have a good supply of milk, as best exemplified by the condition of her own child if she has one. She should be healthy, especial pains being taken to prove her free from syphilitic, tubercular or gonorrheal infection. Proper medical

means should be taken to ascertain these points. She should have a Wassermann test made to disprove syphilis. Her habits should be temperate. She should be non-alcoholic and should be prepared to subsist upon a diet suitable to her function. For the protection of the nurse the child should be free from communicable disease.

198. *Should a mother give her baby formulas used by neighbors' babies of the same age?*

Assuming that the neighbors' formula is a proper one for a normal baby of its age: The mother might borrow it in case of emergency or as a temporary measure, providing her own baby is normal. However, it must be understood that babies' formula requirements are almost as individual as human features and require proper adjustment of component elements to the needs of each particular baby.

199. *How do the ingredients of cow's milk compare with those of human milk?*

The milk of Holstein and Ayrshire cows averages to contain about the same percentage of fat or cream as that of human milk. The milk of Jerseys and Guernseys contains a higher percentage. As compared with human milk: Cow's milk has a higher percentage of proteins or albuminous material (approximately twice as high), barely more than one-half as much sugar, and nearly four times as much mineral salts.

Cow's milk is acid in reaction, while human milk is alkaline.

200. *What important requisites are called for in the production of suitable nursery milk?*

First of all the cows should be clean, healthy and tuberculin-tested. It is necessary to fulfill these requirements in order that accompanying and subsequent conditions may have their full value. Tuberculosis of bovine origin in children is of such great prevalence that it is to be hoped that in time the tuberculin test will be generally required.

The stables should be well lighted and ventilated, and should be kept scrupulously clean.

The milkers and milk-handlers should not only be clean, but it is important that their health as well as that of the cows should be under medical supervision. The udders of the cows and the hands of the milkers should be carefully cleansed before milking. Sterile rubber gloves for the milkers of course add to the assurance of cleanliness.

Every effort should be made to guard against contamination of the milk from dirt, flies and other extraneous hazards. All receptacles should be rigorously cleansed and sterilized.

The milk should be quickly cooled—*e.g.*, by placing the receptacles in running water—and kept cool (35 to 45 degrees F.).

The transportation should be reasonably quick, with a minimum of transfers.

Fulfillment of these conditions tends to keep down the bacterial content of the milk.

201. *What diseases may be conveyed in milk?*

Among the most important diseases are the follow-

ing: Diarrheal disease of infancy, dysentery, diphtheria, scarlet fever, typhoid, streptococcus infections, bovine tuberculosis, Malta fever, foot and mouth disease.

202. *What cows should be chosen to furnish milk for infant feeding?*

Holstein and Ayrshire cows give milk of a more suitable composition than do Jerseys and Guernseys, who give a milk somewhat too rich in cream for satisfactory ordinary feeding without skimming.

It is better to use milk from a herd than to depend upon the milk from a single cow, who may at times give a wholly unsuitable milk. Obviously the herd should consist of healthy, tuberculin-tested cows.

203. *What is milk pasteurization?*

This consists in heating milk to a temperature of 144 to 150 degrees F. for one-half hour and then rapidly cooling to 45 to 50 degrees F. in running water. This process kills the disease-producing bacteria (but not all of their spores) and most of the non-disease-producing ones. If pasteurized milk becomes contaminated the bacteria grow very rapidly, and for that reason commercial pasteurization gives a false sense of security if the milk is not carefully handled or if there is delay in delivery.

204. *Is pasteurized milk injurious?*

It is doubtful if pasteurized milk is injurious. While a good unpasteurized milk of absolutely reliable antecedents is preferable as a food, it is undoubtedly safer

to pasteurize milk in hot weather and when there is any doubt whatsoever about its preparation and marketing.

205. *What is milk sterilization?*

When milk is boiled from 5 to 20 minutes all bacteria and their spores are killed. In this process, however, marked chemical changes occur, and if such milk becomes contaminated bacterial growth occurs very rapidly. Boiled-milk feeding is of value in some cases, but when continued for any considerable length of time should be accompanied by the administration of some such vitamin-containing substances as fruit or vegetable juices.

206. *Is boiled milk injurious?*

The continued use of boiled milk as the main staple of diet is liable to result in scurvy and should be avoided if possible. If its use is obligatory (it has considerable value in some cases), the tendency to scurvy may be met by the administration of orange juice and other fruit and vegetable juices.

207. *Is condensed milk injurious?*

While not actually injurious, it is inferior to raw milk as a food to be administered for any length of time. Occasionally a baby is encountered who thrives on condensed milk better than on a raw-milk formula, but these exceptions doubtless prove the rule. There are certain valuable properties present in raw milk which are lost in the process of manufacture of condensed milk, although the latter is usually more easily digested.

208. *Are patent foods injurious?*

Most of them are not injurious except in a negative way: in that they are often used to the exclusion of a sufficient amount of milk. When added to milk, the carbohydrate constituents being invariable in the majority of cases, it is impossible to alter the proportions to fit a particular case, and therefore they do not permit of sufficient individuality in any one formula.

If one merely obeys the oft-given admonition to "read the directions on the box" the baby is not properly fed as an individual.

209. *Are patent foods desirable?*

Occasionally in certain cases patent foods have a distinct value when added to a milk formula—*i.e.*, the arbitrary combination of food elements may at some given time be indicated in a particular case.

No physician is justified in ordering a patent food unless a knowledge of its exact composition is available.

210. *What common utensils are required in the preparation of bottle feedings?*

A large pitcher.

An 8-ounce or 1-pint measuring graduate.

A long-handled tablespoon.

Bottles (at least 8 to begin with).

Bottle-brush.

Corks.

Bottle-rack.

Nipples.

A large pan or kettle.

Funnel.

Double boiler.

211. *What are desirable qualities for a nursing-bottle?*

The inside should be smooth, without seams or ridges, and it should have a fairly large mouth, thus rendering cleansing easy and effective. A scale for measuring the contents should be blown on the outside of the bottle, thus making it possible to ascertain the amount of contents at any given time.

212. *How should nursing-bottles be cared for?*

New bottles should be annealed to render them less liable to break when exposed to sudden temperature changes, as when cooled under running water or when the contents are boiled, etc. Put the bottles in cold water and bring the water up to the boiling-point, keeping them there for 15 to 20 minutes, then allow to gradually cool.

When each bottle is emptied of milk it should be filled with cold borax water, being allowed to stand until all of the day's bottles are emptied and thus collected. Then scrub thoroughly with soapsuds and water, using a bottle-brush. Boil for 15 to 20 minutes. The bottles are now ready for refilling with the next 24 hours' feedings.

213. *How should rubber nipples be kept during feeding intervals?*

The nipple should be thoroughly scrubbed with soap and water on both sides (turned inside out) and then placed in a sterile drinking-glass kept for the purpose, and the glass should then be covered with a saucer. Immediately before using, the nipple should be rinsed off with boiling water. When kept dry in this manner

rubber nipples deteriorate less quickly than when they are kept in boric-acid or salt solution. The nipples should be boiled once daily.

214. *What is percentage feeding?*

A method of artificial feeding formerly in general use and based upon the not unnatural assumption that a milk formula should be made to imitate, in proportion of ingredients, as closely as possible, the composition of human milk. It has been found, however, that when some of the most satisfactory results are obtained in artificial feeding the formulas oftentimes do not very closely resemble human milk. Infants tolerate far greater proportions of protein to fat than was formerly regarded possible, and greater latitude is now successfully allowed in the administration of carbohydrates, chiefly in the form of various sugars, malt preparations and flours.

The fat of cow's milk differs so greatly from that of human milk that so-called "humanized" cow's milk is very far from being the near substitute that it was formerly supposed to be.

215. *What is caloric feeding?*

A method of artificial feeding based upon the fuel value of the ingredients used when introduced into the human body. This forms the basis of a method of infant-feeding which has been found satisfactory, and has to a large extent superseded percentage feeding. However, no one method should be used to the entire exclusion of all others. The physician should be well acquainted with all methods.

216. *What is a calorie?*

The quantity of heat required to raise the temperature of one litre of water one degree Centigrade.

217. *What are the caloric values of some of the common infant foods?*

		Calories
Whole milk	One ounce	21-23
Skimmed milk (1% fat).....	“ “	13
Skimmed milk (fat-free).....	“ “	11
Cream	“ “	54
Whey	“ “	5-6
Buttermilk	“ “	10
Casein milk	“ “	13
Sugar	“ “	120
Barley flour	“ “	120
Rice flour	“ “	102
Wheat flour	“ “	120
Oatmeal	“ “	120
Soy-bean flour	“ “	120

218. *What are the bulk equivalents of the principal carbohydrate formula ingredients?*

	Weight	Measure
Milk sugar	1	1½
Cane sugar	1	1½
Dextrimaltose	1	1¾
Barley flour	1	2¼
Rice flour	1	1½
Wheat flour	1	2¼
Oatmeal	1	3
Soy-bean flour	1	2

219. *How many calories should an infant receive daily?*

During the first 3 months, 50 calories per pound of weight.

During the second 3 months, 45 calories per pound of weight.

During the third 3 months, 40 calories per pound of weight.

During the fourth 3 months, 35 calories per pound of weight.

Afterwards about 30 calories per pound of weight.

Premature infants require a greater caloric intake: 55 to 60 calories per pound of weight.

220. *What kinds of sugar are commonly used in infant-feeding?*

Lactose, or milk sugar; saccharose, or cane sugar (ordinary table sugar); dextrimaltose, a combination of dextrin and maltose and usually some added mineral salts in different combinations.

221. *What rules should govern the choice of sugar in a formula?*

It seems permissible to make only a few observations upon this subject.

Cane sugar is relatively inexpensive and is often used very successfully.

If there is vomiting when cane sugar or dextrimaltose is used in the formula, it may be worth while to try sugar of milk.

If the baby does not gain sufficiently when cane sugar or sugar of milk is used, if they do not digest well, or if he is constipated, dextrimaltose may be tried. The proprietary preparation of dextrimaltose combined with potassium carbonate is, in most cases, more laxative

than the preparation combined with sodium chloride, or than cane sugar or sugar of milk.

222. *What kinds of flour are commonly used in infant-feeding?*

Barley, oatmeal, rice, wheat and soy-bean flours. The wheat flour is sometimes baked. The flours are practically always boiled before being fed in a formula. They are fed not only for their nutritional value, but also, in some cases, to counteract or act as a substitute for the more laxative sugars or to replace sugar when it is undesirable to give it.

Barley flour is somewhat constipating and is popular in diarrheal disturbances, being given as barley water or barley gruel, these terms merely signifying differences in consisteney. Oatmeal flour is laxative, and soy-bean flour has considerable nutritional value, being rich in protein. Rice flour is sometimes given in eczema cases.

223. *How is skimmed milk prepared?*

By allowing milk to stand in a bottle for 4 to 5 hours, or until the cream has arisen to the top. Then a certain given amount is dipped off from the top or siphoned off from the bottom, the bottom milk being retained and the upper portion discarded. Upon the amount of top cream discarded will depend the percentage of fat in the mixed bottom retained portion. The mixed lower 24 ounces from one quart of Holstein or Ayrshire milk yields about 1% fat, which is about as low a percentage as it is possible to obtain by ordi-

nary methods of skimming or siphoning. By centrifuging may be obtained a practically fat-free milk.

224. When may skimmed milk be given advantageously?

Oftentimes in vomiting, as vomiting cases do not, as a rule, tolerate fats well. It has a decided advantage in eczema, and serves, when given boiled, as an introduction to the resumption of normal milk feeding late in convalescence from diarrheal disease.

225. How is peptonized milk prepared?

Add 4 teaspoonfuls of pancreatic extract and 30 grains (about $\frac{1}{2}$ teaspoonful) of sodium bicarbonate to 1 quart of milk which has been warmed to 105 degrees F. Keep at this temperature for 6 to 20 minutes, according to the degree of peptonization desired. Bring up to the boiling-point to destroy the ferment (chiefly tripsin) and then cool. There is a convenient proprietary preparation known as Fairchild's tubes. Use two tubes to one quart of milk.

After 20 minutes of peptonization the milk assumes a bitter taste. For complete peptonization continue the process for two hours.

Peptonized milk has some value in cases of weak protein-digestion and acute indigestion.

226. How is whey prepared?

Add 1 teaspoonful of rennet, 1 tablespoonful of essence of pepsin, or 1 junket tablet to 1 quart of milk which has been heated to 100 degrees F. Keep at this temperature until the curd has settled out. Break up the curd and strain through gauze.

The casein and considerable of the fat, also insoluble salts, remain in the curd, while a small portion of the fat, the sugar, the soluble salts and soluble proteins are contained in the whey.

Whey is somewhat laxative.

227. How is junket prepared?

The same process is used as for making whey, except that to the one quart of milk are added sugar and vanilla to taste, and the whole preparation is allowed to stand and set without breaking up the curd.

228. What is buttermilk?

It is produced by souring whole or skimmed milk through the introduction of lactic-acid bacilli. These bacteria produce lactic acid through decomposition of the milk sugar, which gives to the buttermilk a sour taste and also causes the fat globules to separate out and coagulate. Lactic-acid bacilli multiply rapidly in milk under favorable conditions, and if a small quantity of buttermilk be added to sweet fresh milk, more buttermilk will be formed. Lactic-acid cultures may be obtained at almost any drug-store. After removal of the coagulated fat the resultant preparation is essentially a sour skimmed milk with less sugar than ordinary milk.

229. What are some uses of buttermilk?

It affords the use of a milk containing a minimum of fat and less sugar than in ordinary milk, and the presence of lactic-acid bacilli which are inimical to the

growth and activities of some of the unfavorable intestinal bacteria.

It is sometimes given during convalescence from diarrheal disease.

It is an essential ingredient of casein milk.

230. *What is casein milk?*

A preparation made from whole milk, buttermilk and water. Essence of pepsin is added to whole milk, causing casein curds, a considerable part of the fat, and calcium and magnesium salts to coagulate out. These are strained out from the whey by passing the milk through gauze. A small amount of boiled water is added to wash this coagulated mass. The latter is then forced through a fine-meshed sieve, buttermilk being added at the same time. The resultant mixture consists chiefly of water, casein, butter fat, calcium and magnesium salts and lactic-acid bacilli. There have been discarded in the whey: soluble proteins, some butter fat, sodium and potassium salts, milk sugar, water, some lactic-acid bacilli and lactic acid. The percentage composition is approximately as follows:

Fat, 3 to 3.50%.

Protein, 3.50 to 3.75%.

Sugar, 1.80 to 2%.

Salts, .65%.

Water, up to 100%.

Casein milk is also termed "protein milk" and "eiweiss milk."

231. *What are some uses of casein milk?*

It is sometimes used in malnutrition and marasmus, and has great value in certain diarrheal conditions.

232. *How is barley water prepared?*

The following preparation will not require much (if any) enlargement of the nipple hole: Barley flour 1 heaping tablespoonful, water 1 pint. Stir the flour up with a little warm water at first and then add to the remainder of the pint, which should be boiling. Continue the boiling for 20 minutes, occasionally replenishing the evaporating water. Strain out any lumps that may be present.

233. *How is oatmeal water prepared?*

Add a heaping tablespoonful of oatmeal to a pint of water, boil for one hour, occasionally replenishing the evaporating water, and strain through gauze or a fine-meshed sieve.

234. *What steps are taken in making up an ordinary formula?*

All utensils and receptacles that come in contact with the formula preparation should be sterilized by boiling. If an ordinary whole-milk formula is prescribed, the milk delivery bottle should be gently agitated by inverting several times before the cap is removed, to make the contents uniform throughout the bottle. After removal of the cap the rim over which the milk is to be poured should be wiped off with sterile cotton or gauze. The proper amount of milk should be poured out into the sterilized glass graduate and from thence into the mixing-pitcher. A small amount of the boiled water to be used should be warmed, and the sugar is added and dissolved in the graduate. The remainder of the boiled water is then added to the sugar solution, and

this mixture is poured into the milk in the mixing-pitcher, and the whole formula gently stirred with a long-handled spoon. The requisite amount of the formula is then poured by means of a funnel into each individual bottle. Each bottle is stoppered with a boiled cork, cooled in running water and placed in the cold (an icebox or refrigerator in the summertime).

235. How should feedings be kept after preparation?

The proper amount of the formula mixture for each feeding should be put into an individual nursing-bottle, a sufficient number of bottles being provided for the number of feedings to be given in 24 hours. Each bottle should be stoppered with a cork which has been boiled, and the contents should be cooled by putting the bottle into running water—*e.g.*, under a water faucet. The bottles should then be kept cold (in an icebox or refrigerator in warm weather).

236. At what temperature should the formula be fed to the baby?

It should be fed at blood temperature or a trifle above—*e.g.*, 99 to 100 degrees F. The mother readily learns to judge of the proper temperature by dropping a small quantity of milk on the back of the hand, on the wrist or the forearm. If the bottle is placed in a small woolen bag the heat is retained sufficiently for the duration of the feeding.

237. What rules should govern the writing of an ordinary average formula?

In view of the general remarks concerning artificial

feeding made in the introduction to this section the following outline is deliberately and necessarily brief and sketchy, and if its application to a particular individual is unsuccessful it should not be condemned, but expert medical advice should be solicited.

We must consider the age of the baby, his approximate stomach capacity and his weight. In determining the number of feedings, quantity of each feeding and total quantity in 24 hours I personally have, in the long run, found the following scheme very satisfactory:

<i>Age</i>	<i>Number of feedings</i>	<i>Quantity of each feeding</i>	<i>Total in 24 hours</i>
Weeks			
1	8 times	1½ ounces	12 ounces
2	8 “	2 “	16 “
3	8 “	2½ “	20 “
4	8 “	3 “	24 “
Months			
2	7 “	4 “	28 “
3	7 “	4½ “	31½ “
4	7 “	5 “	35 “
5	6 “	6 “	36 “
6	6 “	6½ “	39 “
7	6 “	7 “	42 “
8	6 “	7½ “	45 “
9	6 “	8 “	48 “
10	6 “	8 “	48 “
11	6 “	8 “	48 “
12	6 “	8 “	48 “

These feedings are given on a basis of 3-hour intervals.

When 7 feedings are given in 24 hours the night intervals are lengthened, and when 6 feedings are given the night feedings are omitted.

This alternative scheme may be used if desired:

<i>Age</i>	<i>Number of feedings</i>	<i>Quantity of each feeding</i>	<i>Total in 24 hours</i>	
Weeks				
1	8 times	1½ ounces	12	ounces
2	8 “	2 “	16	“
3	8 “	2½ “	20	“
4	8 “	3 “	24	“
Months				
2	7 “	4 “	28	“
3	7 “	4 “	28	“
4	6 “	5 “	30	“
5	5 “	6 “	30	“
6	5 “	6½ “	32½	“
7	5 “	7 “	35	“
8	5 “	7½ “	37½	“
9	5 “	8 “	40	“
10	5 “	8 “	40	“
11	5 “	8 “	40	“
12	5 “	8 “	40	“

When 5 feedings are given in 24 hours the interval is increased from 3 to 4 hours, and sufficient boiled water may be given during the day to keep the liquid intake equivalent to that for the same age in the first scheme given in this section (237).

Both of these schemes allow of a gradual increase in the amount of individual and total 24-hour feedings.

During the first 4 weeks, equal parts of milk and water should suffice for a normal baby of average weight.

In general, after the first month, the amount of whole milk given corresponds in ounces to 1½ times the number of pounds of body weight. If the infant is not satisfied it is permissible to gradually try to increase to 2 times the number of pounds of body weight. Prac-

tically, ill-nourished infants with good digestion thrive better on the latter allowance. The balance of total quantity of fluid is made up with boiled water or cereal water (in the average formula).

At the end of the first week one level teaspoonful of sugar should be enough; after that two to four level tablespoonfuls of sugar is a reasonable average allowance above which it is seldom necessary to go.

The number of calories corresponding to the amount of milk introduced can be calculated, and the balance of calories corresponding to the weight and age of the child can be made up with sugar and other carbohydrates whose caloric values are known.

The subject of infant-feeding cannot be condensed into a nutshell, and the above paragraphs merely describe briefly one method. The expert should have all methods readily available for use.

238. *What is a suitable diet for a healthy child from 12 to 15 months of age?*

CARBOHYDRATES—Oatmeal jelly, barley jelly, wheat jelly, cream of wheat, farina, boiled rice, stale bread, bread crust, toast, zwieback, Italian bread sticks, milk crackers, soda crackers, graham crackers, bran biscuits, agar biscuits.

Dry, ready prepared cereals are less desirable, as they are less digestible, but may occasionally be used for the sake of variety.

PROTEIN FOODS—Milk, scraped rare beef, soft boiled egg, coddled egg, hard-boiled (grated) egg, beef juice, beef broth, lamb broth, chicken broth.

VEGETABLES—Mashed stewed carrots, chopped spinach, asparagus tips, strained stewed tomatoes.

FRUITS—Orange juice, prune juice, grape juice, pineapple juice, orange pulp, prune pulp, scraped raw apple, apple sauce, baked apple.

FATS—Cream, butter, oleomargarine.

DESSERTS—Bread pudding (without raisins), rice pudding (without raisins), junket, custard, cornstarch, tapioca, gelatine.

SAMPLE DIET

7:00 a.m.—Oatmeal jelly, 2 tablespoonfuls in a cupful of milk. Cook the cereal for 3 hours and strain. Toast and butter.

9:00 a.m.—The juice of half an orange, prune juice, grape juice or pineapple juice.

11:00 a.m.—Three teaspoonfuls of scraped rare beef mixed with bread crumbs and moistened with beef juice. (To obtain the scraped beef: broil a piece of round steak over a hot fire, split it, opening it up like a book, and scrape the inside with a spoon.) Crackers. A cupful of milk.

3:00 p.m.—Beef broth containing rice. Mashed stewed carrots. Stale bread with butter, or Italian bread sticks. Plain rice pudding or apple sauce.

6:00 p.m.—Two tablespoonfuls of farina in a cupful of milk. Cook the cereal for 2 hours. Zwieback.

10:00 p.m.—A cupful of milk if desired.

239. *What is a suitable diet for a healthy child from 15 to 18 months of age?*

CARBOHYDRATES—Oatmeal jelly, barley jelly, wheat jelly, cream of wheat, farina, boiled rice, hominy, cornmeal, cream of rye, macaroni, spaghetti, stale bread,

bread crust, toast, zwieback, Italian bread sticks, milk crackers, soda crackers, graham crackers, bran biscuits, agar biscuits.

Dry, ready prepared cereals are less desirable, as they are less digestible, but may occasionally be used for the sake of variety.

PROTEIN FOODS—Milk, scraped rare beef, soft boiled egg, coddled egg, hard-boiled (grated) egg, beef juice, beef broth, lamb broth, chicken broth, creamed fresh codfish, creamed haddock, creamed halibut, oysters (well cooked and chopped).

VEGETABLES—Mashed stewed carrots, chopped spinach, chard, asparagus tips, strained stewed tomatoes, pea soup, bean soup, lentil soup, squash, oyster plant.

FRUITS—Orange juice, prune juice, grape juice, pineapple juice, orange pulp, prune pulp, scraped raw apple, apple sauce, baked apple, baked banana, raw *ripe* banana. When the banana is fully ripe the skin should be nearly black, and the contents should be nearly as soft as custard.

FATS—Cream, butter, oleomargarine, olive oil, cottonseed oil.

DESSERTS—Bread pudding (without raisins), rice pudding (without raisins), junket, custard, cornstarch, tapioca, gelatine, ice cream.

SAMPLE DIET

7:00 a.m.—Three tablespoonfuls of cornmeal served with milk and sugar. Stale bread and butter. A bran biscuit. A cupful of milk.

9:00 a.m.—Half a cupful of prune juice.

11:00 a.m.—A poached egg on toast. Graham crackers. A cupful of milk.

3:00 p.m.—Soup made from peas, beans and lentils mixed, with soup stock added. Creamed fresh codfish, cut fine. Chopped spinach, well cooked. Bread and butter. Well-baked banana. Gelatine.

6:00 p.m.—Three tablespoonfuls of cream of rye, served with milk and sugar. Zwieback. A cupful of milk.

10:00 p.m.—A cupful of milk if desired.

240. *What is a suitable diet for a healthy child from 18 to 24 months of age?*

CARBOHYDRATES—Oatmeal jelly, unstrained oatmeal, barley jelly, unstrained barley, wheat jelly, cream of wheat, farina, boiled rice, hominy, cornmeal, cream of rye, macaroni, spaghetti, stale bread, bread crust, 24-hour-old bread, toast, zwieback, Italian bread sticks, milk crackers, soda crackers, graham crackers, bran biscuits, agar biscuits, ginger snaps, molasses cookies.

Dry, ready prepared cereals are less desirable, as they are less digestible, but may occasionally be used for the sake of variety.

PROTEIN FOODS—Milk (not more than 1½ pints daily), buttermilk, cream cheese, scraped rare beef, boiled, roasted or broiled beef, cut fine, roast lamb or lamb chop, cut fine, minced chicken, lean bacon, soft boiled egg, coddled egg, hard-boiled (grated) egg, beef juice, beef broth, lamb broth, chicken broth, fresh codfish, haddock, halibut, swordfish, flounder, oysters (well cooked and chopped fine).

VEGETABLES—Mashed stewed carrots, chopped spin-

ach, chard, kale, beet greens, asparagus tips, strained stewed tomatoes, pea soup, bean soup, lentil soup, squash, oyster plant, beets, boiled onions, well baked potato, lima beans, string beans, peas, lentils, mashed cauliflower, stewed celery.

FRUITS—Orange juice, prune juice, grape juice, pineapple juice, peach juice, orange pulp, prune pulp, seraped raw apple, apple sauce, baked apple, baked banana, raw *ripe* banana, stewed dried peaches, stewed dried apricots. When a banana is fully ripe the skin should be nearly black and the contents should be nearly as soft as custard.

FATS—Cream, butter, oleomargarine, olive oil, cottonseed oil.

DESSERTS—Bread pudding (without raisins), rice pudding (without raisins), farina pudding, junket, custard, cornstarch, tapioca, gelatine, ice cream.

SAMPLE DIET

7:00 a.m.—Four tablespoonfuls of hominy, served with butter and salt. A coddled egg mixed with cracker crumbs. Buttered toast. A cupful of milk.

9:00 a.m.—Two tablespoonfuls of grape juice, diluted with water.

12:00 m.—Chicken soup with macaroni. Chicken meat, cut fine. Well baked potato. Two boiled onions. Bread and butter. Apple sauce.

3:00 p.m.—Italian bread sticks and a cupful of milk if desired.

6:00 p.m.—Four tablespoonfuls of cream of wheat served with butter and sugar. Milk toast. Jelly sandwich.

241. *What is a suitable diet for a healthy child from 2 to 7 years of age?*

CARBOHYDRATES—Oatmeal jelly, unstrained oatmeal, barley jelly, unstrained barley, wheat jelly, cream of wheat, farina, hominy, cornmeal, cream of rye, whole wheat, broken rice, samp, malt breakfast food, Petti-john, cracked wheat, pearl barley, macaroni, spaghetti, stale bread, bread crust, 24-hour-old bread, graham bread, rye bread, corn bread, toast, zwieback, Italian bread sticks, milk crackers, soda crackers, Unccda biscuit, French rolls, Huntley & Palmer biscuits, bran biscuits, agar biscuits, ginger snaps, molasses cookies.

PROTEIN FOODS—Milk (not more than $1\frac{1}{2}$ pints daily), buttermilk, cream cheese, peanut butter, seraped rare beef, boiled, roasted or broiled beef, roast lamb or lamb chop broiled, chicken and poultry (boiled or roasted), lean bacon, soft-boiled egg, coddled egg, hard-boiled (grated) egg, scrambled egg, omelet, beef juice, beef broth, lamb broth, chicken broth, fresh codfish, haddock, swordfish, halibut, flounder, etc., oysters, well cooked and chopped fine.

VEGETABLES—Stewed earrots, spinaeh, ehard, kale, beet greens, asparagus tips, strained stewed tomatoes, pea soup, bean soup, lentil soup, peas, lentils, squash, oyster plant, beets, boiled onions, well baked potato, lima beans, string beans, mashed eauliflower, stewed ecelery.

FRUITS—Orange juicee, prune juice, grape juicee, pineapple juice, peach juice, orange pulp, raw apple, apple sauce, baked apple, baked banana, ripe peaches, raw *ripe* banana, stewed dried peaches, stewed dried apricots, pears, rhubarb. When a banana is fully ripe the

skin should be nearly black, and the contents should be nearly as soft as custard.

FATS—Cream, butter, oleomargarine, olive oil, cotton-seed oil.

DESSERTS—Bread pudding (without raisins), rice pudding (without raisins), farina pudding, junket, custard, cornstarch, tapioca, gelatine, ice cream, plain cookies, molasses cookies, ginger snaps, sponge cake, lady fingers.

SAMPLE DIET

7:00 a.m.—One saucerful of boiled rice, served with butter and sugar (1 teaspoonful). Scrambled egg (in milk). Corn muffins with butter. One fully ripe banana, one orange or one-half grapefruit. A cupful of cocoa made with milk.

12:00 m.—Meat stew with vegetables, or lamb chop cut fine, or broiled halibut. Potato, stewed carrots or macaroni with olive oil or butter. Spinach, chard, squash, string beans, boiled onions or boiled celery: 3 to 4 tablespoonfuls. Bread and butter: 2 slices. Stewed dried apples, peaches, prunes, apricots: 3 to 4 tablespoonfuls. Ginger snaps or sponge cake. Water.

6:00 p.m.—Cereal: 1 saucerful. Broth or 1 coddled egg on toast. Crackers and milk, or can have 2 slices of bread with butter or peanut butter and a cupful of milk or of cocoa made with milk. Plain pudding made with milk.

242. *How should meats, poultry and fish be cooked?*

Roasted, broiled or boiled, and not fried.

243. *What are some foods to be avoided by young children?*

Tea, coffee, alcoholics, sausage, pork (except bacon), ham, liver, smoked, salt or dried fish, nuts, pickles, fried foods, unripe bananas (except baked), pies, pastries, rich cakes, particularly those made with nuts and dried fruits, raw vegetables, raw fruits in excess.

Very little cake, and then only as dessert.

Very little candy or chocolate to be given.

Not more than one teaspoonful of sugar to be given on a dish of cereal.

Hot bread or rolls, griddle cakes and doughnuts are not to be given.

244. *What are some necessary eating precautions?*

Do not allow the child to eat too fast, nor to wash food down with water, nor to eat at irregular hours.

245. *When should water be given?*

Cool water may be given between meals in the case of older children.

246. *What are vitamins?*

Complex chemical bodies present notably in certain yeasts, animal fats, fruits and vegetables and having a very important influence upon nutrition and growth. The absence of vitamins in the food may cause very grave disorders of nutrition. Their chemical composition has been shrouded in considerable mystery, but modern investigation is at last beginning to shed considerable light upon their more exact nature.

Their potence is well illustrated by the remarkable

manner in which the nutritional disease known as *scurvy* begins almost immediately to clear up following the administration of orange juice or other fruit juices.

247. *When should a baby begin to take fruit juices?*

If not constipated, the baby should be started on fruit juices at 5 months of age. If constipated, or if getting sterilized food, it may be necessary to start earlier.

248. *Does orange juice make the urine acid?*

Orange juice makes the urine less acid.

BAD HABITS

BAD habits should be corrected at the time of their inception, because when once well established they are, as a rule, very tenacious.

Oftentimes there is an obscure underlying basis, such as faulty feeding, bad hygiene, or some physical or nervous abnormality.

249. How should masturbation be treated?

A physician should be consulted regarding the necessity for circumcision, breaking down of adhesions of foreskin or clitoris, or as to the presence of an irritating condition of the urine.

The child's abnormal activities should be rigidly and forcibly restrained if necessary. In the case of thigh-rubbing a diaper or towel or a pad within the diaper should be used to keep the thighs apart. It may be necessary to resort to a special brae (which may be purchased) to keep the thighs apart. If the child indulges in hand manipulation it may be necessary to use aluminum mits or a restraining tape extending from the neck to the wrists.

He should be carefully watched at times when he would ordinarily be alone, especially morning and night, and should not be allowed to sleep alone. If it is necessary to leave him alone he should be supplied with sufficient toys and other amusements to take up his mind.

Absolute cleanliness should be enforced. Cool baths may have some value.

250. How should thumb-sucking be treated?

In mild cases it may be sufficient to remove the offending member from the mouth and distract the baby's attention. If persisted in this may effect a cure. If ineffectual, bitter substances may be applied to the thumb—*e.g.*, tincture or extract of aloes, bisulphate of quinine solution (7%). Although the child may not seem much disturbed by the bitter taste he will tire of it after awhile. It may be necessary in some cases to resort to restraint, such as pinning the sleeves to the dress, using cardboard cuffs to prevent bending of the elbows sufficiently, or by applying aluminum mitts.

Thumb-sucking may lead in time to angular deformity of the upper jaw, with projection of the upper middle teeth; it may cause adenoids, restlessness at night, thick lips and mouth infections.

251. How should finger-nail biting be treated?

The treatment is about the same as that for thumb-sucking. Persistent finger-nail biting is liable to ruin the shape of the finger-tips. Any existent nervous condition should be treated.

252. How should dirt-eating be treated?

The eating of dirt and plaster should of course be prevented by surveillance and restraint. Indirect treatment consists in correcting the nervous or digestive derangement which is probably the underlying cause.

253. *How should breath-holding be treated?*

This is really not a habit, but is due to spasm of the larynx: a nervous condition.

The immediate treatment is to gently slap the child on the face with a wet towel, or to sprinkle cold water on the face. This will cause him to catch his breath.

COMMON AILMENTS AND SIMPLE TREATMENTS

ONE of the chief objections to medical books designed for home use is the fact that there is a liability of instilling just enough knowledge to be dangerous.

When there is a margin of reasonable doubt send for the doctor.

254. *What is a proper equipment for a home emergency cabinet?*

Two-inch gauze bandages.

Sterile gauze in 1-yard packages.

Sterile cotton.

A 2-inch roll of zinc oxide plaster.

Alcohol.

Tincture of iodine, 3½%.

Tincture of benzoin compound.

Rhubarb and soda mixture.

Castor oil.

Sweet oil.

Boric-acid ointment.

Zinc-oxide ointment.

Vaseline.

Glycerine suppositories.

Calomel, 1-10 grain tablets.

Bichloride of mercury tablets.

Sodium bicarbonate.

Boric-acid crystals.

Epsom salts.

Dry mustard.

Medicine-droppers.

Clinical thermometers (mouth and rectal).

Hot-water bags.

Enema bag.

Large-sized soft rubber catheter (for rectal use).

Bulb syringe.

Croup kettle.

255. *What is the normal temperature of an infant?*

The usual rectal temperature varies from 98.6 to 99.2 degrees. It is not uncommon to get a temperature of 98 degrees or even lower in a normal infant, but a temperature above 99.2 is abnormal. It must be realized, however, that an infant's temperature may become elevated as a result of very slightly abnormal causes. External heat (*e.g.*, hot-water bags) may cause very high elevation of the temperature.

256. *How is an infant's temperature best taken?*

In the rectum. The rectal thermometer has a mercury bulb somewhat larger in diameter than the ordinary mouth thermometer, although the latter type can be used without much difficulty. The baby should be placed face downward on the lap, and the thermometer, after lubricating the bulb with vaseline, sweet oil or soap, should be inserted into the rectum for about one inch.

257. *How early in life is it practicable to take the temperature by mouth?*

It is not only impracticable but also unsafe to attempt to take mouth temperature in a child under 5 years of age, as he will not only fail to hold the thermometer properly in the mouth, but will be likely to bite off the end.

258. *What information should be available for a physician when called to see a sick child?*

Any abnormal conduct, occurrence of fever, symptoms of pain, vomiting, condition of bowels, character and amount of urination, character of diet, nervousness, restlessness, sleeplessness or drowsiness, cough, nasal discharge, discharge from ears, character of breathing.

259. *How can urine be collected from young infants?*

A simple method, if one has sufficient patience, is to wait for an interval after the baby has urinated, then hold him on a chamber or basin, at the same time applying a warm cloth or a cold sponge over the lower abdomen. In collecting from a male infant the penis can be placed within a test tube or a small bottle and the latter securely held in place by means of strips of adhesive plaster. In the case of female infants it is a somewhat more difficult matter, but can be accomplished successfully by cutting a finger out of a rubber glove, leaving some of the surrounding material. The extreme tip is cut off from the finger and the latter is stretched over the neck of a small bottle and the other end of the glove finger strapped to the vulva with adhesive plaster by means of the surrounding glove material. When

urine is collected for examination the genitalia should be carefully cleansed to prevent possible external contamination.

260. *What are some causes of sleeplessness in infancy?*

Febrile illness (notably infections of the urinary tract and otitis or ear inflammation), bad training, overfeeding, underfeeding, excessive clothing, insufficient clothing, irritation from clothing (as pins or soiled napkins), adenoids and other nasal obstructions, rickets, malnutrition, constipation with fecal masses, eczema and skin eruptions and irritations.

The above are some of the more common causes.

261. *What can be done for weakness of the ankles?*

The weakness is usually manifested by bending in one direction, either outward or inward. If the weakness is only moderate it may be met by thickening the portion of sole most worn, by splitting the sole and inserting a leather wedge, usually near the heel. If the child tends to walk on the outer edge of the foot the wedge is inserted in the outer edge of the sole, and vice versa. Extension outward of the heel at the point of greatest wear is an extremely valuable measure and insures a much more stable foundation. If the weakness is more marked it is possible to use in addition to the above an ankle corset, stiffened with strips of whalebone, which can be laced on inside the shoe.

Be sure to avoid over-support, in which case the muscles will not receive proper stimulus to develop. Simply aim to give sufficient support to equalize the balance. In cases of marked weakness a physician of

course, preferably an orthopedic specialist, should be consulted.

262. *What should be done for scalding with urination?*

Often the urine is markedly acid and will turn litmus paper bright red. Such a condition can be met by the administration of sodium bicarbonate (baking soda): Give $\frac{1}{4}$ level teaspoonful 4 times daily in the feedings or in water before feedings. If there is an ammonia odor to the urine be very careful to rinse the napkins thoroughly. In older children scalding and irritation may sometimes be relieved by reducing their intake of fruit, meat and salt.

263. *What causes an infant's urine to have an ammonia odor?*

An ammonia odor from the diaper is liable to be caused by the release of free ammonia from certain chemical combinations in the urine by the action of an alkali in the diaper or by contact with alkaline stools. The alkali present in the diaper may be soap, lye or lime and is most likely to be present as a result of lack of careful rinsing or the use of a strongly alkaline water.

It is probable that a neutral or nearly neutral rather than an acid urine is most often present.

264. *What should be done when the baby has a "cold in the head"?*

At the onset give a cathartic: calomel (10 doses of one-tenth grain each at intervals of 10 minutes), castor oil or milk of magnesia. Give a hot bath, followed by a hot drink after 1 year (milk or lemonade), and put

to bed, covering warmly with the object of promoting sweating. Vaseline or albolene (a few drops of the latter) may be put into the nostrils several times daily. The nose may be irrigated with a Seiler's tablet solution (one tablet to half a glassful warm water) morning and night, allowing repeated small quantities to run into each nostril, using a medicine-dropper and so tipping the head as to allow each instillation to run out before giving another. Keep the bowels open and keep the child at rest, preferably in fresh air, and avoid overfeeding.

If he gets worse, having fever, or does not improve within a few days: Call a doctor.

265. *What should be done for diarrhea?*

A diarrheal attack should not continue to be treated by home measures if a prompt response is not obtained—otherwise the case should be turned over to a physician.

The first thing to do is to stop food, especially milk. It is permissible to give barley water (made in the proportion of 2 level tablespoonfuls of barley flour to 1 pint of water: boil for 20 minutes) at the regular feeding intervals and in amount corresponding to the usual amount of milk given at each feeding. Boiled water should be freely administered between the feeding-intervals. This feeding should be maintained for at least 24 hours and prolonged for another 24 hours if the condition has not abated (and if still not abated will probably be continued under the supervision of a physician). A cathartic (calomel, 10 doses of one-tenth grain each at intervals of 10 minutes, castor oil or milk

of magnesia) should be administered to rid the intestines of offending materials as far as possible. The administration of a high enema of salt and water (2 teaspoonfuls of salt to 1 quart of warm water) is a valuable measure. Sodium bicarbonate, 2 teaspoonfuls in 24 hours, dissolved in the boiled water and given in small frequent doses, is valuable in combating acid intoxication. When milk feeding is finally returned to, the milk should at first be skimmed, boiled and much diluted and given without sugar.

During recovery, children over one year of age may receive strained well-cooked cereals, toast water and crackers. Toast soaked in bouillon made from cubes makes a palatable food.

Milk of bismuth in 1-teaspoonful doses every 3 hours has some value as a medicinal agent.

If there is fever or if there is blood or much mucus in the stools: Call the doctor.

The above is a necessarily brief outline of home treatment.

266. *How can a mother know whether her child has worms?*

Intestinal worms are not nearly as common as they are popularly supposed to be. If present they or their ova (eggs) should be present in the stools, although repeated examination may be necessary to demonstrate them. If they are seriously suspected, the physician should be requested to make a microscopic examination of the stools for the ova.

267. *How do children acquire pin worms?*

Pin worms are undoubtedly first introduced into the

body in the form of ova (eggs) by way of the mouth as a result of direct or indirect contamination from some other individual. It is quite possible for a child to repeatedly reinfect himself by carrying the ova into his mouth on his fingers. Doubtless the house fly includes among his many impolite activities that of conveying ova about and depositing them on food. It has been claimed that before the ova can hatch in the body they have first to enter the stomach from above, but it is much more likely that reproduction goes on more or less continually in the intestines and vermiform appendix regardless of this procedure.

268. *What treatment should be given for pin worms?*

Any treatment should be persistently followed up and repeated at intervals, as there is a probability that many of the worms develop in such inaccessible portions of the intestinal canal as the vermiform appendix. Persistence will, however, eventually be rewarded, and it is possible to eventually eradicate them.

A very successful method of treatment is by the use of enemas of garlic infusion. One or two garlies are steeped in a pint of water for one hour, and then, after a preliminary clearing out of the lower bowel by means of an enema of soapsuds and water, the warm garlic infusion is slowly allowed to flow into the lower bowel, the hips being elevated—*e.g.*, over the end of a sofa. The enema should be retained for 20 minutes, pressure being applied over the entrance to the bowel if necessary. This procedure should be followed two or three times every week until the worms are eradicated.

The child should be prevented from reinfecting himself through the mouth after scratching.

If the itching is intense, apply mentholated or carbolated vaseline.

269. *How do children acquire round worms?*

The mode of infection is not absolutely clear. The probability is that the ova (eggs) are taken in with raw food or with food which has not been thoroughly cooked—*e.g.*, vegetables or salads. It is possible for the ova to hatch in garden earth under favorable conditions.

The worms hatch and develop in the small intestine, but they later migrate to the large intestine, stomach and other contiguous body cavities, and I have seen specimens which have actually crawled into the throat and have been expelled by coughing.

270. *What treatment should be given for round worms?*

Give no supper except a little milk or broth. Administer at bedtime calomel and santonin, each one grain, in one-tenth grain doses of each at intervals of 15 minutes. In the morning give a soapsuds enema, or an enema of infusion of quassia chips.

This treatment may have to be repeated occasionally.

271. *How do children acquire tape worms?*

The ova (eggs) are taken into the gastro-intestinal canal during the eating of meat which has been cooked insufficiently to kill them.

The beef tape worm is much more common in this country than the one occurring in pork.

Tape worms are far less common than pin worms or round worms.

272. What are some causes of bed-wetting?

The vast majority of cases are due primarily to instability of the nervous control mechanism. In treatment it is essential to arrive at a correct diagnosis, and before we can definitely attribute the condition (or disease) entirely to nervous instability we must eliminate a certain small minority of prime or contributing factors, chiefly organic, reflex, dietetic and hygienic. The principal of these are as follows: Small bladder, paralysis of or lack of tone in the nerve supply to the bladder neck, large urethra or water passage leading from the bladder, phimosis (or adherent foreskin), adherent clitoris, vaginitis, vulvovaginitis, inflammation of the urethra, inflammation of the bladder, bladder stone, pyelitis (or inflammation of the pelvis of the kidney), rectal polypi, anal fissures, strongly acid urine (due to excess of protein foods), strongly alkaline urine (due to excess of sugar and starches), thread worms (pin worms), constipation, excessive bed-clothing, sleeping on the back, adenoids, enlarged tonsils, hypothyroidism (or lack of proper thyroid secretion).

The nervous control mechanism is governed by so-called conditional reflexes which are more recent in origin and far less stable than the unconditional reflexes, which simply respond to the primitive stimulus to empty the bladder. The higher conditional nerve tracts, dependent largely upon psychic (mental) control, are not easily built up, but are easily broken down or interrupted, especially in nervously unstable children.

273. What can be done for bed-wetting?

First of all endeavor to ascertain any existing con-

tributing factors with the object of eliminating them.

Some of the most important general measures to be observed are as follows:

Stop intake of liquids, with the exception of a wine-glassful of water or milk if desired, after 5 p.m.

Give a light supper.

Especially avoid overfatigue, physical or mental. A midday or afternoon rest and reasonable arising and retiring hours—*e.g.*, 7:30 a.m. and 8:30 p.m.—are necessary.

The child, if old enough, should be trained as follows: When urinating he should invariably start, stop, start, stop, start, stop, start—thereby developing nervous control over the bladder.

He should urinate immediately after supper, before retiring, and once or twice after retiring at a definite time. When gotten up at night he should be fully conscious of what he is doing.

He should not lie on his back. If necessary a spool strung on a cord, or a knotted towel, may be placed at the small of the back.

The foot of the bed may be raised about 1 foot.

Avoid too heavy bed-clothing.

Avoid sweets and rich, highly seasoned foods. Obviously tea, coffee and alcohol should be avoided.

Medical treatment such as the administration of alkalies and sedatives and glandular products should be under the control of a physician.

Good results should be rewarded and bad ones not too strongly condemned.

Surroundings should be quiet and restful, and sometimes a change to country or seashore will be beneficial.

274. *What is meant by the term "incubation period"?*

It is used in connection with the acute contagious diseases and denotes the period of time elapsing between exposure to the disease and the first symptoms of illness manifested by the exposed individual. Within certain limits each contagious disease has a rather definite incubation period, after the expiration of which, if symptoms of illness have not developed, there is no likelihood for apprehension.

275. *What are the chief characteristic symptoms of measles?*

Incubation period 10 to 14 days.

There are usually languor, drowsiness, nasal discharge, eye irritation and discharge, cough, headache, nausea and fever. The fever occurs on the 2nd day and averages 104 degrees F. There occur minute whitish spots surrounded by a reddened base on the mucous membrane inside of the cheek.

The skin eruption occurs on the 3rd, 4th or 5th day and manifests itself on the forehead, face, neck, chest, arms, body and legs. It consists of elevated reddish spots which are liable to group themselves in a crescentic arrangement.

276. *What are the chief characteristic symptoms of German measles?*

Incubation period 1 to 3 weeks.

There are usually drowsiness, slight fever and sore throat. There are occasionally chills or convulsions, vomiting and swelling of lymph nodes of the neck. The fever is very transitory.

The eruption occurs on the 1st or 2nd day and extends over the face, neck, body and extremities. It may somewhat resemble the rash of measles or that of scarlet fever.

277. What are the chief characteristic symptoms of scarlet fever?

Incubation period 1 to 8 days.

Onset occurs with vomiting and high fever (104 to 105 degrees F.). The surface of the tongue somewhat resembles that of a strawberry; there are present marked sore throat, highly colored urine, restlessness, headache, and sometimes delirium.

The skin eruption appears on the 1st or 2nd day on the neck and chest, and then occurs on the entire body. The rash may in some cases be extremely faint. It disappears on pressure and immediately returns when the pressure is released. There is a pale area around the mouth. It is liable to consist of minute reddish spots in the groins, under the arms and upon the roof of the mouth. There is desquamation (peeling) late in the disease.

278. What are the chief characteristic symptoms of diphtheria?

Incubation period 2 to 7 days.

There are symptoms of a "cold," oftentimes with an irritating nasal discharge and mild sore throat. The fever is usually moderate (100 to 102.5 degrees F.). There is enlargement of the lymph nodes at the angle of the jaw. There occurs a grayish white membrane in the region of or upon the tonsils; it is removed with

difficulty and removal is accompanied by bleeding. There is a peculiar fetid odor to the breath.

The onset may be more severe and accompanied by chill, vomiting, headache and high fever. There may be marked prostration. The membrane may spread rapidly and involve the larynx, causing membranous croup, or it may extend to the nose.

279. *What are the chief characteristic symptoms of chicken-pox?*

Ineubation period 14 to 16 days.

There may be chilliness, slight fever, languor, nausea and vomiting. The fever is highest on the 2nd or 3rd day.

The eruption occurs in crops and consists of elevated spots or papules surrounded by a reddened area. These papules soon become filled with fluid, giving somewhat the appearance of drops of water on the skin. The spots dry up and sink in. They are liable to occur anywhere upon the body—*e.g.*, upon the scalp and within the mouth. There is liable to be unpleasant itching.

280. *What are the chief characteristic symptoms of whooping-cough?*

Ineubation period 7 to 14 days.

During the 1st week of onset the symptoms are insufficiently definite to surely base a diagnosis upon them unaided. If there has been an exposure to whooping-cough within the past 7 to 14 days it affords strong evidence in favor of its presence. After the first week of cough the attacks become more characteristic, being more numerous at night and becoming more and more

explosive in nature. The intervals between coughing attacks or paroxysms are free from cough, but the attacks themselves become more severe, causing reddening of the face and later on gagging and finally vomiting. The typical cough consists of a series of explosions finally ended up by a violent intake of breath developing into a definite whoop.

The physician can obtain valuable corroborative evidence by means of a simple blood examination.

281. *What are the chief characteristic symptoms of mumps?*

Incubation period 2 to 25 days (usually 10 to 21 days).

There may be fever, chilliness, drowsiness, languor, vomiting, sweating, faintness, pain in the ear and difficulty in opening the mouth. There is pain at the angle of the jaw when saliva is secreted, especially in the presence of sour substances. There is progressive enlargement under the angle of the jaw (downward and forward of the ear) and in front of the ear on one or both sides. There may also be swelling under the side of the jaw.

There may be swelling of the testes in boys and of the ovaries in girls.

282. *What are the chief symptoms of adenoids?*

When the symptoms are marked the child is pale, ill-nourished and listless. He breathes through the mouth, is subject to nasal catarrh, hears with difficulty, is inattentive and is subject to cough and discharging ears. He is restless at night and thrashes about uneasily,

especially when lying upon the back, snores and is subject to bad dreams. A nasal twang to the voice is often noticed. There may be deformity of the chest, narrowing of the upper jaw and persistent bed-wetting.

283. *When is circumcision advisable?*

It is doubtful if the wholesale circumcision advised by some physicians is advisable. If the foreskin is unduly long or if the opening is so small as to prevent full retraction of the foreskin over the glans or part beneath, the operation is indicated.

Often retraction is prevented because of the existence of adhesions, which merely need to be broken up by a physician.

If the child is addicted to masturbation or bed-wetting, circumcision may solve the problem of cure.

284. *How should eczema be treated?*

This unpleasant skin affection has a constitutional basis (so-called *exudative diathesis*) and is most obstinate and discouraging from the standpoint of treatment. The treatment of a persistent case (and most of them are) is such a complicated affair as to tax the resources of the best medical talent available.

In practically all cases it is found desirable to greatly reduce or eliminate as far as possible the intake of sugars, fats, eggs and oatmeal. Avoid skin irritation, using little or no soap (bran water or albolene can be substituted).

As far as local applications are concerned, they do not effect much alone without constitutional treatment.

One of the best known of external applications is Lassar's paste.

Scratching of the face and head can be prevented in the very young by using pasteboard cylinders or cuffs at the elbows, thus preventing sufficient bending of the arms to permit touching the face with the hands. Sometimes it is necessary to apply a special face mask to guard against rubbing the skin on pillows, bed-clothing, etc.

Medical supervision is usually desirable.

285. How should sunburn be treated?

Best by avoiding. If exposed to the sun's rays it is a mistake to soak the skin with water, especially salt water, as this only intensifies the action of the rays.

After burning, some relief may be obtained by the application of zinc-oxide ointment, cold cream, plain vaseline, mentholated or carbolized vaseline, or a combination of lime water 1 part and olive oil 3 parts.

286. How should prickly heat be treated?

Avoid clothing too warmly, especially with wool. Avoid sweating if possible and heating drinks. Give a mild laxative, such as milk of magnesia. Administer a soda or starch bath, followed by a rinsing with a combination of alcohol 1 part and water 3 parts; then apply a dusting powder of talcum and starch equal parts.

287. How should chilblains be treated?

Woolen stockings should be worn, but should be rather loose, and the shoes should be ample in size,

special pains being taken to avoid any impediment to the circulation. Avoid sudden warming of the affected members when chilled. Paint with tincture of iodine and follow with collodion. Painting with equal parts tincture of aconite and iodine liniment sometimes gives relief.

288. *How should ivy poisoning be treated?*

A saturated boric-acid solution constitutes a very satisfactory wash. Make it up in the proportion of 1 tablespoonful of boric-acid crystals to a pint of warm water. The skin can be kept saturated with this solution, or it can be used merely as a wash and followed by an application of zinc-oxide ointment or carbolized vaseline. The ointment application can be preceded by a wash of lime water or sodium bicarbonate solution (1 teaspoonful to a cup of water) instead of the saturated boric-acid solution.

289. *What is the cause of hives?*

Hives (or *urticaria*) is caused by external and internal irritants, the latter comprising by far the greater proportion.

External irritants include insect-bites, tight clothing and some plants.

Internal irritation may be caused by certain drugs, sera and antitoxins, and foods such as strawberries, grapeskins, tomatoes, oatmeal, buckwheat, rice, potato, peas, nuts, fish, shellfish, pork, chicken, veal, egg, cheese, cascien, beef juice. In some individuals one or more of these agents are always effective, and other individuals only occasionally respond to them.

Proper bowel function is one safeguard against hives.

290. *How should hives be treated?*

Eliminate the cause, give a cathartic and keep the bowels open, and feed upon carbohydrate food for several days.

Itching may be relieved by the use of soda baths and the application of carbolated or mentholated vaseline.

291. *What should be done for cradle cap (milk crust)?*

The medical name for this condition is *seborrhea capitis*—a form of eczema.

The crusts should be softened by applying vaseline or olive oil for 1 to 3 days, depending upon the severity of the condition. When well softened, scrub vigorously with Castile soap and warm water (slight bleeding will do no harm) and at night apply 3% resorein ointment, procurable at any drug-store.

292. *What should be done for chapped skin?*

This condition is really a mild form of eczema due to exposure to cold air, wind, cold water, harsh soaps and other irritants.

Treat, after bathing, by the application of glycerine, or glycerine with zinc-oxide powder stirred into a thin cream, or by vaseline or olive oil.

293. *What are the causes and treatment of styes?*

A sty is an inflammation forming at the base or *follicle* of an eyelash. There is a small localized hard spot of tenderness near the edge of the lid. This spot is surrounded by a reddened area and is liable to eventuate in a small abscess with a discharge of pus.

The condition is usually an accompaniment of a de-

ranged or run-down condition of the system, or may accompany the presence of a refractive error.

Ocasional pus formation may be aborted by the application of cold compresses to the eye, but if favorable results are not soon apparent it is better to bring it to a "head" by the substitution of hot compresses. The withdrawal of the involved eyelash will often prove beneficial.

If repeated styes occur general tonic treatment should be instituted—*e.g.*, the administration of the syrup of the iodide of iron. Diet, rest and bathing should be carefully supervised. The bowels should be kept open. It is important that the presence of refractive errors should be sought for by an eye specialist.

An ointment containing yellow oxide of mercury 1% may be applied to the lids in the morning and at night.

294. *What should be done for cross eyes?*

"Cross eye," squint, or *strabismus* may occur in one or both eyes. There may be present a permanent squint or a temporary deviation (*heterophoria*) which may be overcome by effort. There is often present a refractive error in one eye, and under all circumstances the child should be attended to by a competent eye specialist as soon as the condition is noticed.

There is present a disturbance of coördination or equilibrium, or a paralysis of one or more of the eye muscles, which may result from disease or other internal disturbances. If refractive error is present it should be corrected by the time the child is 5 years of age; otherwise "*binocular fixation*," or the harmonious use of both eyes, will in all probability not be established.

It is emphatically urged that any deviation of one or both eyes should receive the prompt attention of a competent eye specialist.

295. *What are the causes and treatment of running ears?*

This condition commonly results from an inflammation occurring within the middle ear (*otitis media*) which has caused a perforation of the drum membrane. It is frequently preceded by a "cold" and is especially liable to accompany adenoids and enlarged and inflamed tonsils, and some of the acute infectious diseases, notably scarlet fever and measles.

The condition is usually accompanied or preceded by fever and earache and should be attended to by a physician, who will be likely, among other things, to order ear irrigations with warm boric acid, the latter being instilled with slight force into the ear by means of a rubber bulb syringe.

Usually cotton should not be placed within the ears, as it is liable to retard drainage. If it is used to catch discharges it should be changed frequently.

296. *How should protruding ears be treated?*

Protruding ears are liable to be bent over when the infant is lying down, the existing condition thereby becoming aggravated.

The judicious use of a bonnet, net or a little adhesive plaster will prevent this and may be of some value in improving the condition.

297. *What is tongue-tie?*

Tongue-tie is a condition often more apparent than

real, although it occasionally exists. It consists of a shortening or an extension toward the tip of the tongue of the *frenum* or fold extending from the bottom of the tongue to the floor of the mouth. In some instances nursing may be interfered with, and later in life phonation or clear enunciation of words may be interfered with.

It is a very simple matter for the physician to cut this fold or band and thereby cure the condition.

298. *What are the causes and treatment of night terrors?*

Night terrors (*pavor nocturnus*) occur in children from 2 to 8 years of age. The child awakens in a state of extreme fright, a condition analogous to nightmare in older individuals. He is usually much confused and is unable to express the cause of his terror.

The children subject to this condition are likely to be of a sensitive nervous type, and there is often some accompanying digestive disturbance. The child may have enlarged tonsils, adenoids or worms. Over-study, excitement and extreme fatigue are often factors.

Treat by careful regulation of the diet, giving a light meal at night. The bowels should be kept free and all possible exciting causes enumerated above (and including too much "movies") should be eliminated.

299. *What can be done for stuttering?*

Stuttering is due to a nervous overaction of the muscles of breathing and phonation and may be acquired by inheritance, imitation or following sickness. There is an overproduction of sounds, as repetition of

certain consonants, while in stammering there is difficulty in producing distinct sounds.

The child should be urged to use careful speech, being trained to an association of breathing and slow phonation. Whispering may be tried first, followed by louder speech. There should be careful repetition in case of failure. The child should not be allowed to associate with stutterers or stammerers, because of liability to imitation. He should be treated with patience and should not be scolded.

300. *How should constipation in children be treated?*

In the treatment of constipation of a chronic type it is essential to discover the causative factors. These may involve faulty diet or too low liquid intake, sedentary habits, lack of regular bowel training; or there may be less obvious physiological and organic factors. There may be some abnormal condition of the lower bowel interfering with proper action because of attendant pain or spasm, as in anal fissures, inflammation or hemorrhoids. There may be mechanical obstruction or delay of various kinds, as in abnormal position or kinking of the intestines. The condition may be the result of the injudicious use of cathartics, as castor oil. Over-catharsis overstimulates and in time weakens or exhausts the natural muscular or *peristaltic* action of the bowel. Nervous excitability may thus or by general weakness be lessened. Some kinds of poisoning and debilitating conditions, as disease, may be factors. Confinement indoors in winter is a common factor in constipation of children.

As indicated above: seek the cause and endeavor to

eliminate it. Medical advice will often be necessary. Encourage a regular bowel habit by having the child endeavor to move the bowels at a regular time daily, preferably after breakfast. In refractory cases it may be necessary to encourage this regularity by an oil injection on the preceding night, followed in the morning, after breakfast, by a soap or glycerine suppository.

The meals should be regular, proper attention being paid to thorough mastication, suitable amount and kind of food. In some cases a laxative mineral water may be taken before breakfast. The following foods have a laxative tendency: Vegetables, fruits and fruit juices (as orange juice, stewed prunes and apple sauce), coarse or brown bread, bran muffins, cereals with cream and sugar or butter and sugar (1 tablespoonful of bran may be mixed with a saucerful of cereal), sweet butter, cream, beef juice, beef broth.

Limit the amount of milk taken (1 to 1½ pints daily), also crackers, sweets, pastry and bananas.

Plenty of water should be taken at other than meal times. Malt extract may also be taken.

Massage may be practiced, the hand being lubricated with oil, vaseline or cocoa butter, or powdered. Begin at lower right abdomen, work upward, across to the left and then downward, thus following the course of the large intestine. This should be kept up for about 10 minutes immediately preceding the time selected for the bowel movement.

Oil enemas, given at night, may be administered by means of a rubber bulb syringe to which is attached a length of rubber catheter. This should be inserted into the lower bowel for a distance of 8 to 9 inches, from 1

to 4 ounces of warm olive oil, or glycerine and water, equal parts, being used.

Warming compresses may be applied to the abdomen. Daily cool baths indirectly stimulate bowel action.

For a casual cathartic calomel may be used in total dosage of 1 grain, being divided into $\frac{1}{4}$'s, administered at intervals of 15 minutes. Castor oil may be administered in 1 to 2 teaspoonful doses.

301. *What is rickets?*

Rickets (or *rachitis*) is a constitutional nutritional disease affecting especially certain children who are subjected to poor economic and hygienic surroundings. It occurs in temperate and cold climates, and is particularly noticeable among races who have migrated from warmer to colder climates. Proper food, cleanliness, ventilation, fresh dry air and proper exercise are factors of importance in prevention.

There is present a faulty assimilation of calcium taken in the food, which is manifested by a softness of the bones and an enlargement in the region of their growth centers. This is noticeable at the wrists and ankles, the ends of the ribs, the spine, and in certain cranial bones.

Common symptoms are restlessness at night, head sweating, abdominal enlargement, constipation, delay in teething, in fontanel (soft spot) closure and in walking, noticeable enlargement of the wrists, thinning of cranial bones, beading of ribs and spinal curvatures.

Children with rickets have low resistance against disease.

Cod liver oil has great value as a treatment and has

been used with success as a preventive in susceptible cases. Good food and good hygiene are necessary factors in treatment.

302. *What is scurvy?*

Scurvy (or *scorbutus*) is a constitutional nutritional disease affecting especially infants who have been fed to excess upon sterilized foods (often patent and boiled foods) and have had too little raw food. Vitamin deficiency is probably an important factor.

The prominent symptoms are pain and tenderness of the limbs, simulating rheumatism, hemorrhagic swelling along the shaft of one or more of the long bones, irritability, restlessness, loss of appetite, anemia, sponginess and bleeding of the gums, bleeding beneath the skin and mucous membranes, and sometimes bloody urine. The infant is liable to hold his limbs as though paralyzed.

The specific treatment is orange juice and other fruit and vegetable juices. An infant 1 month old may receive 1 teaspoonful daily.

EMERGENCIES AND EXPEDIENTS

PROMPT and intelligent resort to some simple expedient will oftentimes relieve or prevent much discomfort. It may even serve as an effective preventive of some dire consequence.

303. *What should be done for nosebleed?*

The simpler methods of treatment consist of keeping the patient in an upright position, holding the arms above the head, applying cold water to the back of the neck and to the root of the nose, or applying pressure to the root or sides of the nose. Sometimes a piece of paper, rolled up into a cylinder slightly smaller in diameter than a lead pencil and about an inch in length, inserted up under the upper lip, will control bleeding.

If these measures fail a physician should be called, who will probably pack the nostril or use some styptic or both.

304. *What should be done when a foreign body is swallowed?*

Usually nothing. Ordinary objects such as coins, marbles, whistles, buttons, etc., almost invariably pass through without causing any trouble. It is surprising to contemplate the impunity with which young children will swallow and pass off straight pins, clasp pins and even open safety pins.

If a pin is swallowed do not give an active cathartic,

as the resulting contractions of the muscular wall of the bowel might cause perforation. It would be better to give a saline purgative such as Epsom salts (a level tablespoonful in a half glassful of warm water) with the object of washing the foreign body through. It is often recommended to give potato or starchy food of some kind to form a protective coating over the foreign body, but as a matter of fact, the majority of children who swallow pins not having reached the potato-eating age, its administration would likely do more harm than the foreign body itself. Cereal can be given after 7 months.

Watch the stools carefully.

If the foreign body is stuck in the throat the child should be turned upside down, or cautious attempts may be made to dislodge it with the finger.

305. *How should a cut be treated?*

It should first of all be thoroughly cleansed with hot or very cold water, either of which will tend to check bleeding. Severe bleeding can be controlled by direct pressure, if necessary, exerted by the finger or a small cloth pad (preferably sterile, of course). Paint it with 3½% tincture of iodine and apply a dry dressing of sterile gauze if the wound is clean; otherwise a dressing soaked in a solution made by dissolving a bichloride of mercury tablet in 2 quarts of water—and bandage. If the cut is more than ¾ inch in length or is upon the face, the edges may require bringing together, and in case of doubt consult a physician. If the bleeding is intractable, or if the wound has more the character of a puncture than of a cut, a physician should be consulted.

306. How should simple burns be treated?

If the clothing is afire the victim should be made to lie down, thus preventing the flames from rising upward to the face and head. Wrap him tightly in a coat, rug or blanket to exclude the air, or if water is handy douse him with it. After the flames are extinguished the clothing should be gently removed from the burned regions, being cut if necessary to avoid further injury to already damaged parts. If pain is severe apply several layers of linen or gauze soaked in a solution of sodium bicarbonate (baking soda), 1 teaspoonful added to warm water 1 cupful. Later on apply carron oil, vaseline, olive oil, sweet oil, zinc-oxide ointment, boric-acid ointment, cream or fresh lard, the object being to keep air away from the injured area. A satisfactory way to exclude air is to make a paste of water combined with baking soda or with starch or flour. A blister may be opened by means of a needle which has been sterilized in a flame and inserted under the skin at the periphery.

If the burns are not extensive or deep they may be kept cleansed with boric-acid solution, 2 teaspoonfuls to a pint of water, then covered with gauze which has been smeared with boric-acid ointment. This dressing should be lightly bandaged.

In case of extensive or deep burns a physician should be immediately called.

307. How should insect bites be treated?

If the sting has remained in the wound it should be removed by means of tweezers. Immediate relief from discomfort may be sought by the application of ammonia water, spirits of camphor, wet salt, wet clay or

dirt, or baking soda paste. Cold water to which has been added earbolie acid (5 drops to the teaspoonful) should be applied to prevent swelling. Mentholated or carbolized vaseline may be later applied to prevent discomfort.

308. *How should poisoning in general be treated?*

Cause vomiting to rid the stomach of the poison. Give Epsom salts, 1 tablespoonful in $\frac{1}{2}$ glassful of warm water, to flush out the bowels. Combat shock by external heat (blankets and hot-water bottles or hot-water bags) and by administration of stimulants: whiskey, strong coffee, aromatic spirits of ammonia, $\frac{1}{2}$ teaspoonful in water.

If the antidote is known give it.

Send for a doctor.

309. *What should be done for bichloride of mercury poisoning?*

Cause vomiting by giving a teaspoonful of mustard or salt in water. Follow vomiting by giving milk or raw white of egg, or both.

Combat shock by hot-water bags and blankets.

Give stimulants.

Later give Epsom salts, 1 tablespoonful in $\frac{1}{2}$ glassful of warm water.

Give plenty of water and milk to drink.

310. *What should be done for vomiting?*

Vomiting is such a common symptom that it may be a precursor of any one of a great many illnesses, some having very remote relationship to the stomach and

digestion. Therefore, any treatment that may be described here will apply only as an emergency and where there has been some known dietetic error. If vomiting continues it should receive expert medical attention.

The first thing to do is to stop all food. If there is a good clear history of dietetic cause give a cathartic: calomel, 10 doses of one-tenth grain each at intervals of 15 minutes, combining 1 to 2 grains of sodium bicarbonate (baking soda) with each dose of calomel. Give no food for at least 12 hours. At the expiration of that time, if the child is over 1 year of age, give a cracker or a little toast, dry or soaked in hot water or bouillon-cube tea. Later he can receive a little boiled skimmed milk. This should suffice for another 12 hours. Then, if there is no more vomiting, cautiously give a little well-cooked cereal. Avoid fats.

Dissolve a teaspoonful of sodium bicarbonate in half a glassful of warm water and give a teaspoonful of this solution every 15 minutes while vomiting continues. Later give rhubarb and soda mixture: a teaspoonful 3 times daily after meals, and gradually return to normal diet.

If the patient is a nursing baby increase each interval between nursings 30 minutes and decrease each nursing-time 5 minutes.

311. *How should colic be treated?*

Most babies are subjected to occasional attacks of colic during the first three months, but if they are of great frequency, persistence or severity there is usually something radically wrong with the feeding, be it breast or bottle. Colic attacks are readily precipitated by ex-

posure to cold, which condition should be prevented or corrected. Especially avoid chilling of the extremities, and during an attack heat should be applied to the feet and legs by means of woolen stockings and by the use of a hot-water bag or an electric pad. The application of heat to the abdomen will usually aid in giving relief. This may be accompanied by laying the baby face downward on a hot-water bag or an electric pad, or by the application of a mustard plaster (1 part mustard and 3 parts flour) until the skin becomes rosy red (about 10 minutes). Rub on a little sweet oil or vaseline afterward.

Colic attacks being usually accompanied by accumulation of gas, the expedient of holding the baby face downward over the shoulder and gently patting the back will materially assist in getting rid of gas. Likewise an enema of soapsuds and warm water is a valuable procedure. Two or three teaspoonfuls of hot peppermint water and water, equal parts, should be administered.

Many cases of colic are the result of too frequent or too fast feeding, or both, and it will usually be found worth while to lengthen the feeding intervals and at the same time prolong the nursing period, resting the baby between mouthfuls. Sometimes diluting the nursing by giving one or two tablespoonfuls of warm boiled water before nursing will lessen the tendency to colic.

In some cases colic in a nursing baby is due to some intrinsic defect in the mother's milk, especially if she be of a nervous temperament and has reacted unfavorably to the baby's condition. If the colic is persistent a physician should be consulted. Likewise, if the baby

is bottle-fed, a physician should be consulted in view of changing the formula.

312. What should be done for convulsions?

The child should be put into a warm bath (100 to 105 degrees F.), immersing all of the body as high as the neck. Dry mustard may be added to the bath (4 level tablespoonfuls to the gallon of water). He should remain in the bath until the skin assumes a rosy hue (about 10 minutes), cold applications meanwhile being applied to the head. When removed he should be wrapped in a blanket, cold applications should be kept on the head and a hot-water bag should be applied at the feet.

Vomiting should be induced, when the patient assumes consciousness, by means of syrup of ipecac, 1 teaspoonful. A soapsuds enema should be administered.

Send for a physician.

313. How should earache be treated?

Relief may sometimes be attained by gently irrigating the ear with a solution of boric acid (1 teaspoonful to a cupful of water) as warm as can be borne, and administered by means of a medicine-dropper which has been sterilized by boiling. This can be followed by a few drops of 2% phenol in water solution, with 10% glycerine added. Warm glycerine alone may be tried. A hot-water bag applied to the external ear will give relief at times.

If there is elevation of the temperature, or if the condition persists, a physician should be consulted, as it may be necessary to incise the drum to permit the

escape of pus and prevent spontaneous perforation of the drum membrane or even more serious consequences.

314. *How should toothache be treated?*

As a means of temporary relief the cavity should be cleansed out by winding a pledget of cotton on the end of a toothpick and gently twisting it about in the cavity. The cavity should then be packed with cotton, or cotton soaked in oil of cloves, or oil of cloves and chloroform equal parts, or creosote.

Usually a piece of cotton moistened with spirits of camphor and placed between the overlying gum and the cheek will give relief, although it will burn somewhat unpleasantly at first. A hot-water bag placed against the cheek should give some relief.

Of course decayed teeth should receive the attention of a dentist, and one should never forget the old adage about the ounce of prevention. Start the toothbrush habit early in life.

315. *How should croup be treated?*

Spasmodic croup comes on suddenly without much warning, usually in the night, and tends to recur on one or two successive nights, the patient being free from symptoms during the daytime. The symptoms are alarming, especially to one who has never before witnessed them. There is a harsh cough, resembling somewhat the bark of a dog; there is difficulty in breathing, especially with expiration or expulsion of air from the lungs; the face frequently becomes cyanotic (bluish); the child struggles for breath.

Nausea or vomiting should be induced by means of

syrup of ipecac. If the attack is very severe it will be well to induce vomiting by giving from $\frac{1}{2}$ to 1 teaspoonful. If the attack is not very severe give 10 drops every half hour to a child of 1 year, until relief is obtained.

Inhalations of steam are valuable and may be administered by means of an ordinary tea-kettle or a regular croup kettle. The addition of tincture of benzoin compound (1 teaspoonful to the pint of boiling water) will enhance the inhalation.

Cold or hot compresses over the throat are valuable in venting or moderating an attack on the following night. To a child of 1 year may be given 5 drops every 2 hours.

During the following day small doses of syrup of ipecac should be administered with the object of pre-relaxing the spasms.

If the condition does not subside by morning or progressively gets worse a physician should be consulted.

316. *What are the causes and treatment of hiccough?*

Hiccough is due to spasm of the *diaphragm*, the muscle lying between the chest and the abdomen. This muscle assists materially in drawing in and expelling the breath. Stomach disturbances—*e.g.*, the sudden entrance of hot or cold liquids or rapid feeding—start the spasms.

A usually efficient means of stopping hiccough is to give a small amount of sugar on the tip of a spoon or with a little warm water. Tickling the nose and causing to sneeze is one method. Sometimes medical aid has to be enlisted.

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